

=> d his nofile

(FILE 'REGISTRY' ENTERED AT 12:33:59 ON 04 JAN 2010)

```

L1      E GINKGOLIDE A/CN
      4 SEA SPE=ON ABB=ON PLU=ON "GINKGOLIDE A"/CN OR ("GINKGOLIDE
      A, (±)-"/CN OR "GINKGOLIDE A, (10B)-(±)-"/CN OR
      "GINKGOLIDE A, (14A)-"/CN)
      E GINKGOLIDE B/CN
L2      1 SEA SPE=ON ABB=ON PLU=ON "GINKGOLIDE B"/CN
      E GINKGOLIDE C/CN
L3      1 SEA SPE=ON ABB=ON PLU=ON "GINKGOLIDE C"/CN
      E GINKGOLIDE J/CN
L4      1 SEA SPE=ON ABB=ON PLU=ON "GINKGOLIDE J"/CN
      E BILOBALIDE/CN
L5      1 SEA SPE=ON ABB=ON PLU=ON BILOBALIDE/CN
      D SCAN
L6      8 SEA SPE=ON ABB=ON PLU=ON (L1 OR L2 OR L3 OR L4 OR L5)

FILE 'CAPLUS' ENTERED AT 12:36:30 ON 04 JAN 2010
L7      1223 SEA SPE=ON ABB=ON PLU=ON L6
      E GINKGO BILOBA/CT
      E E3+ALL
L8      5267 SEA SPE=ON ABB=ON PLU=ON GINKGOACEAE/OBI OR GINKGO BILOBA/OB
      I
L9      513 SEA SPE=ON ABB=ON PLU=ON L8 AND L7
L10     659 SEA SPE=ON ABB=ON PLU=ON L7 (L) (PUR OR THU OR PREP)/RL
L11     312 SEA SPE=ON ABB=ON PLU=ON L10 AND L8
L12     426805 SEA SPE=ON ABB=ON PLU=ON CHROMATOG?/OBI
L13     30 SEA SPE=ON ABB=ON PLU=ON L12 AND L11
L14     675 SEA SPE=ON ABB=ON PLU=ON TERPENE#/OBI (L) (LACTONE#/OBI OR
      TRILACTONE#/OBI)
L15     1196 SEA SPE=ON ABB=ON PLU=ON GINKGOLIDE#/OBI OR BILOBALIDE#/OBI
L16     1740 SEA SPE=ON ABB=ON PLU=ON L14 OR L15
L17     699 SEA SPE=ON ABB=ON PLU=ON L16 AND L8
L18     120 SEA SPE=ON ABB=ON PLU=ON L17 AND L12
L19     91 SEA SPE=ON ABB=ON PLU=ON L18 NOT L13
L20     27729 SEA SPE=ON ABB=ON PLU=ON HYDROGENOLYSIS/OBI OR BENZYLATION/O
      BI
L21     179933 SEA SPE=ON ABB=ON PLU=ON (COLUMN/OBI OR LIQUID/OBI) (L) L12
L22     1 SEA SPE=ON ABB=ON PLU=ON L19 AND L20
L23     67 SEA SPE=ON ABB=ON PLU=ON L19 AND L21
      D SCAN L22
      D BIB
L24     31 SEA SPE=ON ABB=ON PLU=ON L13 OR L22

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FILE 'REGISTRY' ENTERED AT 12:45:10 ON 04 JAN 2010

Nizal Chandrakumar 10/579,162

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E ETHYL ACETATE/CN
L25      1 SEA SPE=ON ABB=ON PLU=ON "ETHYL ACETATE"/CN
D RN
L26      975 SEA SPE=ON ABB=ON PLU=ON 141-78-6/CRN
L27      682 SEA SPE=ON ABB=ON PLU=ON L26 AND NC<3

FILE 'CAPLUS' ENTERED AT 12:46:55 ON 04 JAN 2010
L28      675 SEA SPE=ON ABB=ON PLU=ON L27
L29      0 SEA SPE=ON ABB=ON PLU=ON L28 AND L23
L30      0 SEA SPE=ON ABB=ON PLU=ON L28 AND L24
E COLUMN CHROMATOGRAPHY/CT
E E3+ALL
L31      23072 SEA SPE=ON ABB=ON PLU=ON LIQUID CHROMATOGRAPHY/CT
L32      17 SEA SPE=ON ABB=ON PLU=ON L31 AND L23
D SCAN TI
E ALKYLATION/CT
E E3+ALL
L33      98170 SEA SPE=ON ABB=ON PLU=ON ALKYLAT7/OBI
L34      0 SEA SPE=ON ABB=ON PLU=ON L33 AND L23
L35      1008201 SEA SPE=ON ABB=ON PLU=ON SOLVENT7/BI
L36      10 SEA SPE=ON ABB=ON PLU=ON L23 AND L35
L37      25 SEA SPE=ON ABB=ON PLU=ON L32 OR L36
L38      2 SEA SPE=ON ABB=ON PLU=ON L32 AND L35
D SCAN TI
L39      33 SEA SPE=ON ABB=ON PLU=ON L38 OR L24
L40      1 SEA SPE=ON ABB=ON PLU=ON L32 AND ALKYL7/BI
L41      34 SEA SPE=ON ABB=ON PLU=ON L40 OR L39
L42      4697 SEA SPE=ON ABB=ON PLU=ON NAKANISHI K7/AU
L43      18 SEA SPE=ON ABB=ON PLU=ON JARACZ S7/AU
L44      1992 SEA SPE=ON ABB=ON PLU=ON MALIK S7/AU
L45      5456 SEA SPE=ON ABB=ON PLU=ON ISHII H7/AU
L46      85 SEA SPE=ON ABB=ON PLU=ON DZYUBA S7/AU
L47      12209 SEA SPE=ON ABB=ON PLU=ON (L42 OR L43 OR L44 OR L45 OR L46)
L48      37 SEA SPE=ON ABB=ON PLU=ON L47 AND L6
L49      3 SEA SPE=ON ABB=ON PLU=ON L48 AND L12
L50      163 SEA SPE=ON ABB=ON PLU=ON L47 AND L12
L51      5 SEA SPE=ON ABB=ON PLU=ON L50 AND L16
L52      5 SEA SPE=ON ABB=ON PLU=ON L49 OR L51
L53      2 SEA SPE=ON ABB=ON PLU=ON L52 NOT L41

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FILE 'STNGUIDE' ENTERED AT 12:53:31 ON 04 JAN 2010

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=> fil reg
FILE 'REGISTRY' ENTERED AT 13:07:33 ON 04 JAN 2010
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

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STRUCTURE FILE UPDATES: 3 JAN 2010 HIGHEST RN 1200115-43-0
DICTIONARY FILE UPDATES: 3 JAN 2010 HIGHEST RN 1200115-43-0
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New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH June 26, 2009.

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REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stdoc/properties.html>

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=> d que 16
L1      4 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "GINKGOLIDE A"/CN OR
      ("GINKGOLIDE A, (±)-"/CN OR "GINKGOLIDE A, (10B)-(±)
      -"/CN OR "GINKGOLIDE A, (14A)-"/CN)
L2      1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "GINKGOLIDE B"/CN
L3      1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "GINKGOLIDE C"/CN
L4      1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "GINKGOLIDE J"/CN
L5      1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON BILOBALIDE/CN
L6      8 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON (L1 OR L2 OR L3 OR
      L4 OR L5)
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=> d 16 rn cn
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L6      ANSWER 1 OF 8 REGISTRY COPYRIGHT 2010 ACS on STN
RN      149683-79-8 REGISTRY
CN      9H-1,7a-(Epoxymethano)-1H,6aH-cyclopenta[c]furo[2,3-
      b]furo[3',2':3,4]cyclopenta[1,2-d]furan-5,9,12(4H)-trione,
      3-(1,1-dimethylethyl)hexahydro-4,7b-dihydroxy-8-methyl-,
      (1R,3S,3aS,4R,6aR,7aR,7bR,8R,10aS,11aS)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN      Ginkgolide A, (14a)-
OTHER NAMES:
CN      14-Epiginkgolide A
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=> d 16 rn cn 2-8
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L6      ANSWER 2 OF 8 REGISTRY COPYRIGHT 2010 ACS on STN
RN      119502-58-8 REGISTRY
CN      9H-1,7a-(Epoxymethano)-1H,6aH-cyclopenta[c]furo[2,3-
```

Nizal Chandrakumar 10/579,162

b]furo[3',2':3,4]cyclopenta[1,2-d]furan-5,9,12(4H)-trione,
3-(1,1-dimethylethyl)hexahydro-4,7b-dihydroxy-8-methyl-,
(1R,3S,3aS,4S,6aR,7aR,7bR,8S,10aS,11aR)-rel- (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Ginkgolide A, (10β)-(±)-

L6 ANSWER 3 OF 8 REGISTRY COPYRIGHT 2010 ACS on STN

RN 119460-49-0 REGISTRY

CN Ginkgolide A, (±)- (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN 9H-1,7a-(Epoxymethano)-1H,6aH-cyclopenta[c]furo[2,3-b]furo[3',2':3,4]cyclopenta[1,2-d]furan, ginkgolide A deriv.

L6 ANSWER 4 OF 8 REGISTRY COPYRIGHT 2010 ACS on STN

RN 107438-79-9 REGISTRY

CN 9H-1,7a-(Epoxymethano)-1H,6aH-cyclopenta[c]furo[2,3-b]furo[3',2':3,4]cyclopenta[1,2-d]furan-5,9,12(4H)-trione, 3-(1,1-dimethylethyl)hexahydro-2,4,7b-trihydroxy-8-methyl-, (1S,2R,3S,3aS,4R,6aR,7aR,7bR,8S,10aS,11aS)- (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Ginkgolide A, 7-hydroxy-, (7β)-

OTHER NAMES:

CN 9H-1,7a-(Epoxymethano)-1H,6aH-cyclopenta[c]furo[2,3-b]furo[3',2':3,4]cyclopenta[1,2-d]furan-5,9,12(4H)-trione, 3-(1,1-dimethylethyl)hexahydro-2,4,7b-trihydroxy-8-methyl-, [1S-(1a,2a,3β,3aR*,4β,6aa,7aa,7ba,8a,10aa,11aR*)]-

CN BN 52024

CN Ginkgolide J

L6 ANSWER 5 OF 8 REGISTRY COPYRIGHT 2010 ACS on STN

RN 33570-04-6 REGISTRY

CN 4H,5aH,9H-Furo[2,3-b]furo[3',2':2,3]cyclopenta[1,2-c]furan-2,4,7(3H,8H)-trione, 9-(1,1-dimethylethyl)-10,10a-dihydro-8,9-dihydroxy-, (3aS,5aR,8R,8aS,9R,10aS)- (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN 4H,5aH,9H-Furo[2,3-b]furo[3',2':2,3]cyclopenta[1,2-c]furan-2,4,7(3H,8H)-trione, 9-(1,1-dimethylethyl)-10,10a-dihydro-8,9-dihydroxy-, [5aR-(3aS*,5aa,8β,8aS*,9a,10aa)]-

CN 4H,5aH,9H-Furo[2,3-b]furo[3',2':2,3]cyclopenta[1,2-c]furan-2,4,7(3H,8H)-trione, 9a-tert-butyl-10,10aβ-dihydro-8a,9-dihydroxy-, (-)- (8CI)

OTHER NAMES:

CN (-)-Bilobalide

CN Bilobalid

CN Bilobalide

L6 ANSWER 6 OF 8 REGISTRY COPYRIGHT 2010 ACS on STN

RN 15291-77-7 REGISTRY

CN 9H-1,7a-(Epoxymethano)-1H,6aH-cyclopenta[c]furo[2,3-b]furo[3',2':3,4]cyclopenta[1,2-d]furan-5,9,12(4H)-trione, 3-(1,1-dimethylethyl)hexahydro-4,7b,11-trihydroxy-8-methyl-, (1R,3S,3aS,4R,6aR,7aR,7bR,8S,10aS,11R,11aR)- (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN 5H-Dicyclopenta[b,c]furan-3,5a(6H)-diacetic acid, 6-tert-butyl-3a-carboxyhexahydro-α5a,1,2,3,5,8-hexahydroxy-α3-methyl-, tri-γ-lactone (8CI)

CN Ginkgolide A, 1-hydroxy-, (1β)- (8CI)

OTHER NAMES:

Nizal Chandrakumar 10/579,162

CN 9H-1, 7a-(Epoxymethano)-1H, 6aH-cyclopenta[c]furo[2,3-b]furo[3',2':3,4]cyclopenta[1,2-d]furan-5,9,12(4H)-trione, 3-(1,1-dimethylethyl)hexahydro-4,7b,11-trihydroxy-8-methyl-, [1R-(1a,3β,3aS*,4β,6aa,7aa,7ba,8a,10aa,11β,11aR*)]-

CN BN 52021

CN BN 52051

CN Ginkgolide B

L6 ANSWER 7 OF 8 REGISTRY COPYRIGHT 2010 ACS on STN

RN 15291-76-6 REGISTRY

CN 9H-1, 7a-(Epoxymethano)-1H, 6aH-cyclopenta[c]furo[2,3-b]furo[3',2':3,4]cyclopenta[1,2-d]furan-5,9,12(4H)-trione, 3-(1,1-dimethylethyl)hexahydro-2,4,7b,11-tetrahydroxy-8-methyl-, (1S,2R,3S,3aS,4R,6aR,7aR,7bR,8S,10aS,11R,11aR)- (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN 5H-Dicyclopenta[b,c]furan-3,5a(6H)-diacetic acid, 6-tert-butyl-3a-carboxyhexahydro-α5a,1,2,3,5,7,8-heptahydroxy-α3-methyl-, tri-γ-lactone (8CI)

CN 9H-1, 7a-(Epoxymethano)-1H, 6aH-cyclopenta[c]furo[2,3-b]furo[3',2':3,4]cyclopenta[1,2-d]furan-5,9,12(4H)-trione, 3-tert-butylhexahydro-2,4,7b,11-tetrahydroxy-8-methyl- (8CI)

CN Ginkgolide A, 1,7-dihydroxy-, (1β,7β)-

OTHER NAMES:

CN 9H-1, 7a-(Epoxymethano)-1H, 6aH-cyclopenta[c]furo[2,3-b]furo[3',2':3,4]cyclopenta[1,2-d]furan-5,9,12(4H)-trione, 3-(1,1-dimethylethyl)hexahydro-2,4,7b,11-tetrahydroxy-8-methyl-, [1R-(1a,2a,3β,3aS*,4β,6aa,7aa,7ba,8a,10aa,11a,11aR*)]-

CN BN 52022

CN Ginkgolide C

L6 ANSWER 8 OF 8 REGISTRY COPYRIGHT 2010 ACS on STN

RN 15291-75-5 REGISTRY

CN 9H-1, 7a-(Epoxymethano)-1H, 6aH-cyclopenta[c]furo[2,3-b]furo[3',2':3,4]cyclopenta[1,2-d]furan-5,9,12(4H)-trione, 3-(1,1-dimethylethyl)hexahydro-4,7b-dihydroxy-8-methyl-, (1R,3S,3aS,4R,6aR,7aR,7bR,8S,10aS,11aS)- (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN 9H-1, 7a-(Epoxymethano)-1H, 6aH-cyclopenta[c]furo[2,3-b]furo[3',2':3,4]cyclopenta[1,2-d]furan-5,9,12(4H)-trione, 3-tert-butylhexahydro-4,7b-dihydroxy-8-methyl- (8CI)

CN Ginkgolide A

OTHER NAMES:

CN 9H-1, 7a-(Epoxymethano)-1H, 6aH-cyclopenta[c]furo[2,3-b]furo[3',2':3,4]cyclopenta[1,2-d]furan-5,9,12(4H)-trione, 3-(1,1-dimethylethyl)hexahydro-4,7b-dihydroxy-8-methyl-, [1R-(1a,3β,3aS*,4β,6aa,7aa,7ba,8a,10aa,11aS*)]-

CN BN 52020

CN [1R-(1a,3β,3aS*,4β,6aa,7aa,7ba,8a,10aa,11aS*)]-3-(1,1-Dimethylethyl)hexahydro-4,7b-dihydroxy-8-methyl- 9H-1,7a-(epoxymethano)-1H, 6aH-cyclopenta[c]furo[2,3-b]furo[3',2':3,4]cyclopenta[1,2-d]furan-5,9,12(4H)-trione

=> d que 125 ;d rn cn 125

L25 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "ETHYL ACETATE"/CN

L25 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2010 ACS on STN
RN 141-78-6 REGISTRY
CN Acetic acid ethyl ester (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Acetic acid, ester with EtOH (7CI)
OTHER NAMES:
CN Acetic acid, ethyl ester
CN Acetic ether
CN Acetidin
CN Acetoxyethane
CN Ethyl acetate
CN Ethyl ethanoate
CN EtOAc
CN NSC 70930
CN Vinegar naphtha

=> d que 127

L26 975 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON 141-78-6/CRN
L27 682 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L26 AND NC<3

=> fil caplus

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FILE COVERS 1907 - 4 Jan 2010 VOL 152 ISS 2
FILE LAST UPDATED: 3 Jan 2010 (20100103/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Oct 2009
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Oct 2009

CAPlus now includes complete International Patent Classification (IPC) reclassification data for the third quarter of 2009.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

'OBI' IS DEFAULT SEARCH FIELD FOR 'CAPLUS' FILE

=> d que 141

L1 4 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "GINKGOLIDE A"/CN OR
 ("GINKGOLIDE A, (±)-"/CN OR "GINKGOLIDE A, (10B)-(±)
 -"/CN OR "GINKGOLIDE A, (14A)-"/CN)
 L2 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "GINKGOLIDE B"/CN
 L3 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "GINKGOLIDE C"/CN
 L4 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "GINKGOLIDE J"/CN
 L5 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON BILOBALIDE/CN
 L6 8 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON (L1 OR L2 OR L3 OR
 L4 OR L5)
 L7 1223 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L6
 L8 5267 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON GINKGOACEAE/OBI OR
 GINKGO BILOBA/OBI
 L10 659 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L7 (L) (PUR OR THU OR
 PREP)/RL
 L11 312 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L10 AND L8
 L12 426805 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON CHROMATOG?/OBI
 L13 30 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L12 AND L11
 L14 675 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON TERPENE#/OBI (L)
 (LACTONE#/OBI OR TRILACTONE#/OBI)
 L15 1196 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON GINKGOLIDE#/OBI OR
 BILOBALIDE#/OBI
 L16 1740 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L14 OR L15
 L17 699 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L16 AND L8
 L18 120 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L17 AND L12
 L19 91 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L18 NOT L13
 L20 27729 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON HYDROGENOLYSIS/OBI OR
 BENZYLATION/OBI
 L21 179933 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON (COLUMN/OBI OR
 LIQUID/OBI) (L) L12
 L22 1 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L19 AND L20
 L23 67 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L19 AND L21
 L24 31 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L13 OR L22
 L31 23072 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON LIQUID CHROMATOGRAPHY/C
 T
 L32 17 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L31 AND L23
 L35 1008201 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON SOLVENT?/BI
 L38 2 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L32 AND L35
 L39 33 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L38 OR L24
 L40 1 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L32 AND ALKYL?/BI
 L41 34 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L40 OR L39

=> d que 153

L1 4 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "GINKGOLIDE A"/CN OR
 ("GINKGOLIDE A, (±)-"/CN OR "GINKGOLIDE A, (10B)-(±)
 -"/CN OR "GINKGOLIDE A, (14A)-"/CN)
 L2 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "GINKGOLIDE B"/CN
 L3 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "GINKGOLIDE C"/CN
 L4 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "GINKGOLIDE J"/CN
 L5 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON BILOBALIDE/CN
 L6 8 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON (L1 OR L2 OR L3 OR
 L4 OR L5)
 L7 1223 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L6
 L8 5267 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON GINKGOACEAE/OBI OR
 GINKGO BILOBA/OBI
 L10 659 SEA FILE=CAPLUS SPE=ON ABB=ON PLU=ON L7 (L) (PUR OR THU OR
 PREP)/RL

Nizal Chandrakumar 10/579,162

L11	312	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L10 AND L8
L12	426805	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	CHROMATOG?/OBI
L13	30	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L12 AND L11
L14	675	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	TERPENE#/OBI (L) (LACTONE#/OBI OR TRILACTONE#/OBI)
L15	1196	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	GINKGOLIDE#/OBI OR BILOBALIDE#/OBI
L16	1740	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L14 OR L15
L17	699	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L16 AND L8
L18	120	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L17 AND L12
L19	91	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L18 NOT L13
L20	27729	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	HYDROGENOLYSIS/OBI OR BENZYLATION/OBI
L21	179933	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	(COLUMN/OBI OR LIQUID/OBI) (L) L12
L22	1	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L19 AND L20
L23	67	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L19 AND L21
L24	31	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L13 OR L22
L31	23072	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	LIQUID CHROMATOGRAPHY/C T
L32	17	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L31 AND L23
L35	1008201	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	SOLVENT?/BI
L38	2	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L32 AND L35
L39	33	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L38 OR L24
L40	1	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L32 AND ALKYL?/BI
L41	34	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L40 OR L39
L42	4697	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	NAKANISHI K?/AU
L43	18	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	JARACZ S?/AU
L44	1992	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	MALIK S?/AU
L45	5456	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	ISHII H?/AU
L46	85	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	DZYUBA S?/AU
L47	12209	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	(L42 OR L43 OR L44 OR L45 OR L46)
L48	37	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L47 AND L6
L49	3	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L48 AND L12
L50	163	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L47 AND L12
L51	5	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L50 AND L16
L52	5	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L49 OR L51
L53	2	SEA FILE=CAPLUS	SPE=ON	ABB=ON	PLU=ON	L52 NOT L41

=> d .ca l41 1-34; d .ca l53 1-2

L41 ANSWER 1 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2009:1192569 CAPLUS [Full-text](#)
 DOCUMENT NUMBER: 151:478871
 TITLE: Optimization of extraction technique and validation of
 developed RP-HPLC-ELSD method for determination of
 terpene trilactones in Ginkgo biloba
 leaves
 AUTHOR(S): Kaur, Pushpinder; Chaudhary, Abha; Singh, Bikram;
 Gopichand
 CORPORATE SOURCE: Natural Plant Products Division, Institute of
 Himalayan Bioresource Technology, (CSIR), Palampur,
 176061, India
 SOURCE: Journal of Pharmaceutical and Biomedical Analysis
 (2009), 50(5), 1060-1064

CODEN: JPBADA; ISSN: 0731-7085
 PUBLISHER: Elsevier B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 30 Sep 2009
 AB Terpene trilactones are potent and selective antagonists of platelet activating factor. The present study deals with standardization of efficient extraction method and validation of newly developed simple, sensitive, and rapid reversed phase high performance liquid chromatog. method with evaporative light scattering detection (RP-HPLC-ELSD) method for the quant. determination of ginkgolide A (GA), ginkgolide B (GB), ginkgolide C (GC), ginkgolide J (GJ), and bilobalide (BB) within 8 min in Ginkgo biloba leaf extract. The anal. was conducted on a Zorbax RP-C18 column with gradient elution of MeOH-water-tetrahydrofuran. The method was validated for accuracy, precision, limit of detection, and quantification. The drift tube temperature of evaporative light scattering detector was set to 90° and nitrogen flow rate was 1.5 standard liter/min (SLM).
 CC 64-2 (Pharmaceutical Analysis)
 Section cross-reference(s): 63
 ST ginkgolide detn RP HPLC ELSD Ginkgo biloba
 IT Ginkgo biloba
 Natural products, pharmaceutical
 Reversed phase HPLC
 (extraction technique and validation of RP-HPLC-ELSD method for determination of
 terpene trilactones in Ginkgo biloba leaves)
 IT Terpenes
 RL: ANT (Analyte); PUR (Purification or recovery); ANST (Analytical study); PREP (Preparation)
 (lactones, trilactones; extraction technique and validation of RP-HPLC-ELSD method for determination of terpene trilactones in Ginkgo biloba leaves)
 IT Liquid chromatographic detectors
 (light-scattering, evaporative; extraction technique and validation of RP-HPLC-ELSD method for determination of terpene trilactones in Ginkgo biloba leaves)
 IT 15291-75-5F, Ginkgolide A 15291-76-6P, Ginkgolide C
 15291-77-7F, Ginkgolide B 32570-04-6P, Bilobalide
 107430-79-9P, Ginkgolide J
 RL: ANT (Analyte); PUR (Purification or recovery); ANST (Analytical study); PREP (Preparation)
 (extraction technique and validation of RP-HPLC-ELSD method for determination of
 terpene trilactones in Ginkgo biloba leaves)
 REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
 L41 ANSWER 2 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2009:1146703 CAPLUS Full-text
 DOCUMENT NUMBER: 152:6020
 TITLE: Separation and purification of bilobalide and ginkgolides A, B and C from Ginkgo biloba leaves by high-speed counter-current chromatography
 AUTHOR(S): Su, Jing; Tan, Feng; Li, Lianqiang; Xie, Jun; Feng, Wei; Chen, Bin
 CORPORATE SOURCE: Key Laboratory of Eco-environments in Three Gorges Reservoir Region (Ministry of Education), Key Laboratory of Plant Ecology and Resources in Three Gorges Reservoir Region, School of Life Science,

Nizal Chandrakumar 10/579,162

Southwest University, Chongqing, 400715, Peop. Rep. China

SOURCE: Zhongcaoyao (2008), 39(11), 1644-1648
CODEN: CTYAD8; ISSN: 0253-2670
PUBLISHER: Zhongcaoyao Zazhi Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

ED Entered STN: 21 Sep 2009

AB Bilobalide and ginkgolides A, B and C from Ginkgo biloba leaves were separated and purified. Firstly, the extract of G. biloba leaves was purified by extraction of acetic ether, D-101 macroporous resin and Al2O3 (pH 4) to obtain the crude extract of lactones. Then, the crude extract was further purified by high-speed counter-current chromatog. (HSCCC) to prepare the monomers of bilobalide and ginkgolides A, B and C. The crude extract of lactones with the purity of 44.98% was obtained by extraction with 25% alc., acetic ether, D-101 macroporous resin and Al2O3 (pH 4). When the crude extract was further purified by HSCCC, the different purities of bilobalide and ginkgolides A, B and C were got. The maximal purities of bilobalide and ginkgolides A, B and C were 98.3%, 98.9%, 98.8% and 98.4%, resp. This method, which is simple and rapid, provides a new way to sep. and purify the lactones from G. biloba leaves.

CC 11-1 (Plant Biochemistry)

Section cross-reference(s): 9

IT Ginkgo biloba

Leaf

(separation and purification of bilobalide and ginkgolides A, B and C from Ginkgo biloba leaves by high-speed counter-current chromatog.)

IT Lactones

RL: BSU (Biological study, unclassified); BIOL (Biological study)

(separation and purification of bilobalide and ginkgolides A, B and C from Ginkgo biloba leaves by high-speed counter-current chromatog.)

IT 15291-75-5P, Ginkgolide A 15291-76-6P, Ginkgolide C

15291-77-7P, Ginkgolide B 33570-04-6P, Bilobalide

RL: BSU (Biological study, unclassified); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation)

(separation and purification of bilobalide and ginkgolides A, B and C from Ginkgo biloba leaves by high-speed counter-current chromatog.)

L41 ANSWER 3 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2009:816643 CAPLUS Full-text

DOCUMENT NUMBER: 151:254321

TITLE: Metabolite profiling of plant extracts by ultra-high-pressure liquid chromatography at elevated temperature coupled to time-of-flight mass spectrometry

AUTHOR(S): Grata, Elia; Guilleme, Davy; Glauser, Gaetan; Boccard, Julien; Carrupt, Pierre-Alain; Veuthey, Jean-Luc; Rudaz, Serge; Wolfender, Jean-Luc

CORPORATE SOURCE: School of Pharmaceutical Sciences, University of Lausanne, University of Geneva, Geneva, 1211, Switz.

SOURCE: Journal of Chromatography, A (2009), 1216(30), 5660-5668

CODEN: JCRAEY; ISSN: 0021-9673

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 08 Jul 2009

AB Detailed metabolite profiling of crude plant exts., mandatory for both quality control and metabolomics purposes, requires high-resolution separation and sensitive detection with a reasonable sample throughput. In this respect, the use of ultra-high-pressure liquid chromatog. (UHPLC) working at high temperature (HT) and coupled to time-of-flight mass spectrometry (TOF-MS) was evaluated in the present study in terms of achievable peak capacities for given anal. times. Prior to the anal. of complex mixts., the effects of TOF-MS detection on peak capacity were evaluated, and a loss of 15-30% compared to UV was observed due to the addnl. band broadening generated by this detector. Exts. from a model plant *Arabidopsis thaliana* and from a widely used phytochem. preparation *Ginkgo biloba*, as well as a standard mixture of representative natural products (NPs), were analyzed. As expected from the theory, the increase in mobile phase temperature of $\leq 90^\circ\text{C}$ for the profiling of exts. containing metabolites spread over a large polarity range (e.g., *Arabidopsis thaliana*) generated similar peak capacities to those obtained at room temperature, but with a 2- to 3-fold reduction in anal. time, demonstrating the power of this approach for such applications. On the other hand, for the anal. of more polar exts. (e.g., *Ginkgo biloba*), the use of higher temperature was not beneficial, as it induced a significant decrease in retention, and thus resolving power, because of the increase in elution strength. The use of HT-UHPLC-TOF-MS raised the question of NP stability under high temperature conditions. This work demonstrated that no apparent degradation was evidenced at high temperature for a representative mixture of NPs and also for the different metabolites detected in the selected plant exts.

CC 64-2 (Pharmaceutical Analysis)

IT *Arabidopsis thaliana*

Decomposition

Decomposition kinetics

Ginkgo biloba

Natural products, pharmaceutical

Polarity

Thermal stability

(metabolite profiling of plant exts. by UPLC at elevated temperature

coupled

to TOF mass spectrometry)

IT 50-55-5P, Reserpine 117-39-5P, Quercetin 149-91-7P, Gallic acid, analysis 153-18-4P, Rutin 305-01-1P, Esculetin 476-66-4P, Ellagic acid 497-76-7P, Arbutin 520-18-3P, Kaempferol 521-62-0P, Frangulin A 531-75-9P, Esculin 1415-73-2P, Aloin 11021-13-9P, Ginsenoside Bb2 14101-04-3P, Frangulin B 15291-76-6P 22888-70-6P, Silibinin 25429-38-3P, Coumaric acid 94492-24-7P, 2'-Acetylacteoside
 RL: ANT (Analyte); PRP (Properties); PUR (Purification or recovery); ANST (Analytical study); PREP (Preparation)

(metabolite profiling of plant exts. by UPLC at elevated temperature

coupled

to TOF mass spectrometry)

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 4 OF 34 CAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 2009:694898 CAPLUS Full-text

DOCUMENT NUMBER: 151:235418

TITLE: Liquid chromatography/atmospheric pressure chemical ionization ion trap mass spectrometry of bilobalide in plasma and brain of rats after oral administration of its phospholipidic complex

AUTHOR(S): Rossi, Rossana; Basilico, Fabrizio; Rossoni, Giuseppe;

CORPORATE SOURCE: Riva, Antonella; Morazzoni, Paolo; Mauri, Pier Luigi
Institute for Biomedical Technologies, Proteomics and
Metabolomics Unit, CNR, Segrate, Milan, 20090, Italy

SOURCE: Journal of Pharmaceutical and Biomedical Analysis
(2009), 50(2), 224-227
CODEN: JPBADA; ISSN: 0731-7085

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 09 Jun 2009

AB Standardized exts. of Ginkgo biloba L. leaves are widely used in clin.
practice for the symptomatic treatment of mild to moderate dementia syndromes,
cerebral insufficiency and for the enhancement of cognitive function. The
main active components present in G. biloba exts. are flavonol-glycosides and
terpene-lactones. In recent investigations, the sesquiterpene trilactone
bilobalide has been described to exert an interesting neuroprotective effect
when administered systemically to exptl. animals. Oral administration of
terpene-lactones either as standardized exts. or purified products is
characterized by a low bioavailability. While preparing phospholipidic
complex of G. biloba exts. or bilobalide, plasma levels of terpenes and
sesquiterpene increase. In the present study, phospholipidic complex of
bilobalide (IDN 5604) has been administered orally to rats and bilobalide
levels have been determined in plasma and brain by means of a validated method
based on liquid chromatog. coupled to atmospheric pressure chemical ionization
ion trap mass spectrometry (LC/APCI-ITMS). Due to its sensitivity (about 3
pmol/mL) and specificity, LC/APCI-ITMS method proved to be a very powerful
tool for pharmacokinetic studies of Ginkgo terpene-lactones. The results of
the present study clearly confirm the improvement of oral bioavailability of
bilobalide administered as phospholipidic complex and, for the first time,
demonstrate the detection of significant amounts of bilobalide in brain. This
last finding agrees with the neuroprotective activity observed for bilobalide.

CC 1-1 (Pharmacology)

ST liq chromatog atm pressure spectrometry bilobalide phospholipid
complex Phytosome

IT Ion trap mass spectrometry
(atmospheric pressure chemical; liquid chromatog./atmospheric pressure
chemical ionization ion trap mass spectrometry of bilobalide in plasma and brain
of rats after oral administration of its phospholipidic complex)

IT Blood analysis
Blood plasma
Brain
Drug bioavailability
Ginkgo biloba
Liquid chromatography
Oral drug delivery systems
Pharmacokinetics
(liquid chromatog./atmospheric pressure chemical ionization ion trap mass
spectrometry of bilobalide in plasma and brain of rats after oral
administration of its phospholipidic complex)

IT Sesquiterpenes
RL: ANT (Analyte); PKT (Pharmacokinetics); THU (Therapeutic use); ANST
(Analytical study); BIOL (Biological study); USES (Uses)
(liquid chromatog./atmospheric pressure chemical ionization ion trap mass
spectrometry of bilobalide in plasma and brain of rats after oral
administration of its phospholipidic complex)

IT 33570-04-6, Bilobalide
RL: ANT (Analyte); PKT (Pharmacokinetics); THU (Therapeutic use)
; ANST (Analytical study); BIOL (Biological study); USES (Uses)

(liquid chromatog./atmospheric pressure chemical ionization ion trap mass spectrometry of bilobalide in plasma and brain of rats after oral administration of its phospholipidic complex)

IT 153049-42-4, IDN 5604
 RL: PKT (Pharmacokinetics); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (liquid chromatog./atmospheric pressure chemical ionization ion trap mass spectrometry of bilobalide in plasma and brain of rats after oral administration of its phospholipidic complex)

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 5 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2009:506604 CAPLUS Full-text
 DOCUMENT NUMBER: 150:523480
 TITLE: Method for separating and extracting ginkgolide b from Ginkgo biloba leaves
 INVENTOR(S): Sun, Lili; Luo, Zenggui; Tang, Jiangming; Li, Zhenzhi
 PATENT ASSIGNEE(S): Guilin Zhenda Bio-Tech Co., Ltd., Peop. Rep. China
 SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 7pp.
 CODEN: CNXXEV
 DOCUMENT TYPE: Patent
 LANGUAGE: Chinese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CN 101412725	A	20090422	CN 2007-10050245	20071015
PRIORITY APPLN. INFO.:			CN 2007-10050245	20071015

ED Entered STN: 28 Apr 2009

AB The title method comprises (1) extracting ginkgo biloba leaves with 60-80%, 30-55%, and 10-25% ethanol as sequence at 50-70°C, combining extracting liquid, reclaiming ethanol to obtain concentrated extracting liquid; (2) extracting concentrated extracting liquid with Et acetate for 3 times, reclaiming organic phase, concentrating to obtain extract gum; (3) diluting, loading on selective polar non-porous adsorption resin column ADS-15, ADS-17, or ADS-F8, eluting with 50-70% ethanol, reclaiming ethanol, crystallizing with 50-80% ethanol to obtain ginkgolide compds.; (4) loading ginkgolide compds. on silica gel column, eluting with n-hexane and Et acetate (9:1- 2:8) mixed solution, collecting eluting liquid rich in ginkgolide B; (5) reclaiming solvent of eluting liquid, and crystallizing with ethanol to obtain ginkgolide B. This invention has simple technol., low production cost, high product purity, and is fit for com. process.

CC 63-5 (Pharmaceuticals)

ST solvent extrn chromatog ginkgolide Ginkgo biloba

IT Chromatography
 Ginkgo biloba
 Solvent extraction
 (method for separating and extracting ginkgolide b from Ginkgo biloba leaves)

IT 64-17-5, Ethanol, uses 110-54-3, n-Hexane, uses 141-78-6, Ethyl acetate, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (method for separating and extracting ginkgolide b from Ginkgo biloba leaves)

IT 35291-77-7F, Ginkgolide b
 RL: PUR (Purification or recovery); PREP (Preparation)
 (method for separating and extracting ginkgolide b from Ginkgo

biloba leaves)

L41 ANSWER 6 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2009:506596 CAPLUS Full-text
 DOCUMENT NUMBER: 150:523458
 TITLE: Method for extraction of ginkgolides compound from ginkgo biloba leaves
 INVENTOR(S): Sun, Lili; Luo, Zenggui; Tang, Jiangming; Li, Zhenzhi
 PATENT ASSIGNEE(S): Guilin Zhenda Bio-Tech Co., Ltd., Peop. Rep. China
 SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 6pp.
 CODEN: CNXXEV
 DOCUMENT TYPE: Patent
 LANGUAGE: Chinese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 101412724	A	20090422	CN 2007-10050241	20071015

PRIORITY APPLN. INFO.:
 ED Entered STN: 28 Apr 2009
 CN 2007-10050241 20071015

AB The method comprises extracting Ginkgo biloba leaves with 8-10-fold 60-80% ethanol, 6-8-fold 30-55% ethanol and 5-7-fold 10-25% ethanol in turn at 50-70°C each for 1-3 h, merging the extract liquid, recovering ethanol, diluting with water, extracting with Et acetate thrice, concentrating, diluting with water, purifying on selective nonporous adsorbent resin (such as ADS-15, ADS-17 or ADS-F8) column with 50-70% ethanol as eluent, recovering ethanol, and recrystg. with 50-80% ethanol to obtain the title compound containing ginkgolide A, ginkgolide B, ginkgolide C, ginkgolide J and bilobalide. The method has the advantages of high yield, simple extraction process, low cost, high purity in >60%, and suitability for industrialized production

CC 63-4 (Pharmaceuticals)
 ST ginkgolide ginkgo biloba solvent extn chromatog
 IT Chromatography
 Ginkgo biloba
 Solvent extraction
 (method for extraction of ginkgolides compound from ginkgo biloba leaves)

IT 64-17-5, Ethanol, uses 141-78-6, Ethyl acetate, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (method for extraction of ginkgolides compound from ginkgo biloba leaves)

IT 15291-75-5P, Ginkgolide A 15291-76-6P, Ginkgolide C
 15291-77-7P, Ginkgolide B 33570-04-6P, Bilobalide
 107438-79-9P, Ginkgolide J
 RL: PUR (Purification or recovery); PREP (Preparation)
 (method for extraction of ginkgolides compound from ginkgo biloba leaves)

L41 ANSWER 7 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2009:506595 CAPLUS Full-text
 DOCUMENT NUMBER: 150:523479
 TITLE: Method for extracting ginkgolide c from ginkgo biloba leaf
 INVENTOR(S): Sun, Lili; Luo, Zenggui; Tang, Jiangming; Li, Zhenzhi
 PATENT ASSIGNEE(S): Guilin Zhenda Bio-Tech Co., Ltd., Peop. Rep. China
 SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 7pp.
 CODEN: CNXXEV
 DOCUMENT TYPE: Patent

Nizal Chandrakumar 10/579,162

LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	CN 101412722	A	20090422	CN 2007-10050239	20071015
PRIORITY APPLN. INFO.:				CN 2007-10050239	20071015
ED Entered STN:	28 Apr 2009				
AB	The title method comprises (1) performing repeated extraction on Ginkgo biloba leaves with ethanol orderly from low concentration to high concentration, combining extractive liquors, and recovering alc.; (2) extracting with Et acetate, and recovering solvent to obtain extract; (3) separating on selective polar nonporous adsorbent resin column with ethanol as eluent, recovering ethanol, and crystallizing in ethanol to obtain ginkgolides; (4) separating ginkgolides on silica gel column with hexane-Et acetate (9:1-2:8, volume/volume) as eluent; and (5) recovering solvent and crystallizing in ethanol. The inventive method has the advantages of simple process, low production cost, high purity, and suitability for mass production				
CC	63-5 (Pharmaceuticals)				
ST	solvent extn chromatog ginkgolide ginkgo biloba				
IT	Chromatography Ginkgo biloba (method for extracting ginkgolide c from ginkgo biloba leaf)				
IT	64-17-5, Ethanol, uses	110-54-3, Hexane, uses	141-78-6, Ethyl acetate, uses		
	RL: NUU (Other use, unclassified); USES (Uses) (method for extracting ginkgolide c from ginkgo biloba leaf)				
IT	15291-76-6P, Ginkgolide c RL: PUF (Purification or recovery); PREP (Preparation) (method for extracting ginkgolide c from ginkgo biloba leaf)				

L41 ANSWER 8 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2009:506569 CAPLUS Full-text
DOCUMENT NUMBER: 150:523478
TITLE: Method for extracting and separating ginkgolide j from Ginkgo biloba leaves
INVENTOR(S): Sun, Lili; Luo, Zenggui; Tang, Jiangming; Li, Zhenzhi
PATENT ASSIGNEE(S): Guilin Zhenda Bio-Tech Co., Ltd., Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 7pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	CN 101412723	A	20090422	CN 2007-10050240	20071015
PRIORITY APPLN. INFO.:				CN 2007-10050240	20071015
ED Entered STN:	28 Apr 2009				
AB	The method comprises (1) extracting Ginkgo biloba leaves with different concns. of ethanol at 50-70°C, combining, recovering ethanol to obtain concentrated extracted solution; (2) adding Et acetate, extracting, recovering organic phase, concentrating; (3) diluting, passing through selective polar non-porous adsorbent resin column, eluting with ethanol, recovering ethanol				

from eluent, crystallizing with ethanol to obtain ginkgolides; (4) purifying on silica gel column, eluting with the mixture of n-hexane and Et acetate, collecting eluent; and (5) collecting solvent in eluent, and crystallizing with ethanol to obtain ginkgolide J. The method is simple and easy in industrial production, and has low preparation cost. The product has high purity.

CC 63-5 (Pharmaceuticals)

ST solvent extn chromatog ginkgolide Ginkgo
biloba

IT Chromatography

Ginkgo biloba

Solvent extraction

(method for extracting and separating ginkgolide j from Ginkgo
biloba leaves)

IT 64-17-5, Ethanol, uses 141-78-6, Ethyl acetate, uses

RL: NUU (Other use, unclassified); USES (Uses)

(method for extracting and separating ginkgolide j from Ginkgo
biloba leaves)

IT 107438-79-9P, Ginkgolide j

RL: PUR (Purification or recovery); PREP (Preparation)

(method for extracting and separating ginkgolide j from Ginkgo
biloba leaves)

L41 ANSWER 9 OF 34 CAPLUS COPYRIGHT 2010 ACS ON STN

ACCESSION NUMBER: 2009:429568 CAPLUS Full-text

DOCUMENT NUMBER: 152:378

TITLE: Simultaneous determination of plasma ginkgolide A and
B by gas chromatography-mass spectrometry
and the pharmacokinetics in beagle dogs

AUTHOR(S): Wu, Qiong-shi; Di, Bin; Wen, Hong-liang; Cheng,
Ming-chuan; Liu, Wen-ying

CORPORATE SOURCE: Department of Pharmacy, Hainan Provincial People's
Hospital, Haikou, 570311, Peop. Rep. China

SOURCE: Zhongguo Xinyao Zazhi (2009), 18(4), 365-368,359
CODEN: ZXZHA6; ISSN: 1003-3734

PUBLISHER: Zhongguo Xinyao Zazhi Youxian Gongsi

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

ED Entered STN: 10 Apr 2009

AB The objective of the paper is to develop a method for the simultaneous
determination of ginkgolide A and B in plasma, and investigate the
pharmacokinetics in beagle dogs. Methyltestosterone (mt) was selected as the
internal standard Chromatog. anal. was achieved after solid-phase extraction
and derivatization with bis (trimethylsilyl) trifluoroacetamide. The assay
linear calibration range was 1-80µg·L⁻¹ for both ginkgolide A and ginkgolide
B. The limit of quantitation was 1 µg·L⁻¹ for both ginkgolide A and B. The
extraction recoveries were over 85%. Both the intra-day and inter-day coeffs.
of variation were below 10%. The method was applied to the determination of
ginkgolide A and B in plasma samples from 5 male beagle dogs after a single
oral administration of ginkgo tablets (Yinxingye Pian). This method is
simple, rapid and sensitive; no interferences from endogenous substances in
the analyte can be detected. This is an important method in the study of
pharmacokinetics for ginkgolide A and B.

CC 1-2 (Pharmacology)

IT Mass spectrometry

(gas chromatog. combined with; simultaneous determination of plasma
ginkgolide A and B by gas chromatog.-mass spectrometry and
pharmacokinetics in beagle dogs)

IT Gas chromatography

(mass spectrometry combined with; simultaneous determination of plasma

Nizal Chandrakumar 10/579,162

ginkgolide A and B by gas chromatog.-mass spectrometry and pharmacokinetics in beagle dogs)

IT Blood plasma
Ginkgo biloba
Pharmacokinetics
(simultaneous determination of plasma ginkgolide A and B by gas chromatog.-mass spectrometry and pharmacokinetics in beagle dogs)

IT Extraction
(solid-phase; simultaneous determination of plasma ginkgolide A and B by gas chromatog.-mass spectrometry and pharmacokinetics in beagle dogs)

IT 15291-75-5, Ginkgolide A 15291-77-7, Ginkgolide B
RL: PKT (Pharmacokinetics); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(simultaneous determination of plasma ginkgolide A and B by gas chromatog.-mass spectrometry and pharmacokinetics in beagle dogs)

L41 ANSWER 10 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2009:375002 CAPLUS Full-text

DOCUMENT NUMBER: 150:431502

TITLE: Method for separating and purifying ginkgolides and bilobalide monomer from Chinese medicine Ginkgo

Zhang, Li; Yang, Bing; Dong, Weizhen; Xia, Ke

PATENT ASSIGNEE(S): Chendu Push Biotechnology Co., Ltd., Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 10pp.

CODEN: CNXEXV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CN 101392000	A	20090325	CN 2008-10046162	20080925
PRIORITY APPLN. INFO.:			CN 2008-10046162	20080925

ED Entered STN: 31 Mar 2009

AB The title method comprises of: (1) weighing ginkgo leaf, adding 30-50 volume% ethanol solution, stirring for dissoln. at 40-60 °C, standing for 2 h, pouring supernatant out, adding petroleum ether (boiling range of 60-90 °C), extracting for three times, recovering petroleum ether, and discarding remnant, removing ginkgoic acid, (2) vacuum-concentrating water phase obtained in step 1 at 60 °C to recover organic reagent, adding Et acetate to water solution, extracting for three times, combining Et acetate phases, back-extracting with water for two times, and vacuum-concentrating at 60 °C to obtain total terpene lactones, (3) dissolving in 80 volume% methanol, and performing microfiltration, (4) high-efficiency separating methanol solution of total terpene lactones via an HPLC column to resp. collect solns. of ginkgolides A, B, C and J and bilobalide monomer, and (5) vacuum-concentrating at 50-60 °C to recover methanol, adsorbing with AB-8 macroporous resin, desorbing with 95% ethanol, vacuum-concentrating, and vacuum-drying with coexistence of phosphorus pentoxide to obtain ginkgolides A, B, C and J and bilobalide monomer with purity more than 98%. The method has the advantages of high production amount, good product quality, high yield and low cost, and is suitable for industrialized production

CC 63-4 (Pharmaceuticals)

IT Preparative liquid chromatography
(high-performance reversed-phase; method for separating and purifying

ginkgolides and bilobalide monomer from Chinese medicine Ginkgo)
 IT Ginkgo biloba
 Natural products, pharmaceutical
 (method for separating and purifying ginkgolides and bilobalide monomer
 from
 Chinese medicine Ginkgo)
 IT 15291-75-5F, Ginkgolide A 15291-76-6P, Ginkgolide C
 15291-77-7F, Ginkgolide B 33570-64-6P, Bilobalid
 107439-79-9P, Ginkgolide J
 RL: ANT (Analyte); PUR (Purification or recovery); TAO
 (Therapeutic use); ANST (Analytical study); BIOL (Biological study);
 PREP (Preparation); USES (Uses)
 (method for separating and purifying ginkgolides and bilobalide monomer
 from
 Chinese medicine Ginkgo)

L41 ANSWER 11 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2009:231907 CAPLUS Full-text

DOCUMENT NUMBER: 150:406783

TITLE: Chemical analysis and quality control of
 Ginkgo biloba leaves, extracts, and
 phytopharmaceuticals

AUTHOR(S): van Beek, Teris A.; Montoro, Paola

CORPORATE SOURCE: Laboratory of Organic Chemistry, Natural Products
 Chemistry Group, Wageningen University, Wageningen,
 6703 HB, Neth.

SOURCE: Journal of Chromatography, A (2009), 1216(11),
 2002-2032

CODEN: JCRAEY; ISSN: 0021-9673

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

ED Entered STN: 26 Feb 2009

AB A review. The chemical anal. and quality control of Ginkgo leaves, exts.,
 phytopharmaceuticals and some herbal supplements is comprehensively reviewed.
 The review is an update of a similar, earlier review in this journal. Since
 2001 over 3000 papers on Ginkgo biloba have appeared, and about 400 of them
 pertain to chemical anal. in a broad sense and are cited herein. The more
 important ones are discussed and, where relevant, compared with the best
 methods published prior to 2002. In the same period over 2500 patents were
 filed on Ginkgo and the very few related to anal. are mentioned as well.
 Important constituents include terpene trilactones, i.e. ginkgolide A, B, C, J
 and bilobalide, flavonol glycosides, biflavones, proanthocyanidins,
 alkylphenols, simple phenolic acids, 6-hydroxykynurenic acid, 4-O-
 methylpyridoxine and polyprenols. In the most common so-called "standardized"
 Ginkgo exts. and phytopharmaceuticals several of these classes are no longer
 present. About 130 new papers deal with the anal. of the terpene trilactones.
 They are mostly extracted with MeOH or water or mixts. thereof. Supercrit.
 fluid extraction and pressurized water extraction are also possible. Sample
 clean-up is mostly by liquid-liquid extraction with Et acetate although no
 sample clean-up at all in combination with LC/MS/MS is gaining in importance.
 Separation and detection can be routinely carried out by RP-HPLC with ELSD, RI
 or MS, or by GC/FID or GC/MS after silylation. Hydrolysis followed by LC/MS
 allows the simultaneous anal. of terpene trilactones and flavonol aglycons.
 No quant. procedure for all major flavonol glycosides has yet been published
 because they are not com. available. The quantitation of a few available
 glycosides was carried out but does not serve a real purpose. After acidic
 hydrolysis to the aglycons quercetin, kaempferol, and isorhamnetin and
 separation by HPLC, quantitation is straightforward and yields by recalcn. an
 estimation of the original total flavonol glycoside content. A profile of the

genuine flavonol glycosides can detect poor storage or adulteration. Although the toxicity of Ginkgo alkylphenols upon oral administration has never been undoubtedly proven, most suppliers limit their content in exts. to 5 ppm and dozens of papers on their anal. were published. One procedure in which a methanolic extract is directly injected on a C8 HPLC column appears superior in terms of sensitivity (<5 ppm), separation, simplicity, and validation and will be incorporated in the European Pharmacopoeia. Alternatively GC/MS and ELISA methods can be used. A sharp contrast to the plethora of papers on terpene trilactones, flavonol glycosides, and ginkgolic acids forms the low number of papers on biflavones, proanthocyanidins, simple phenolics, simple acids, and other constituents that make up the remaining 70% of Ginkgo standardized exts. More research in this direction is clearly needed. For the anal. of Ginkgo proanthocyanidins (7%) for instance, no reliable assays are yet existing. Finally the growing literature on pharmacokinetic and fingerprinting studies of Ginkgo is briefly summarized.

- CC 64-0 (Pharmaceutical Analysis)
 Section cross-reference(s): 63
 ST review Ginkgo biloba quality control analysis std
 IT Pharmacopoeias
 (European; chemical anal. and quality control of Ginkgo
 biloba leaves, exts., and phytopharmaceuticals)
 IT Phenols, analysis
 RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical
 study); BIOL (Biological study)
 (alkyl; chemical anal. and quality control of Ginkgo
 biloba leaves, exts., and phytopharmaceuticals)
 IT Flavones
 RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical
 study); BIOL (Biological study)
 (biflavones; chemical anal. and quality control of Ginkgo
 biloba leaves, exts., and phytopharmaceuticals)
 IT Gas chromatography
 Natural products, pharmaceutical
 Quality control
 Reversed phase HPLC
 (chemical anal. and quality control of Ginkgo biloba
 leaves, exts., and phytopharmaceuticals)
 IT Proanthocyanidins
 RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical
 study); BIOL (Biological study)
 (chemical anal. and quality control of Ginkgo biloba
 leaves, exts., and phytopharmaceuticals)
 IT Liquid chromatography
 (combined with tandem mass spectrometry; chemical anal. and quality
 control of Ginkgo biloba leaves, exts., and
 phytopharmaceuticals)
 IT Glycosides
 RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical
 study); BIOL (Biological study)
 (flavonoid; chemical anal. and quality control of Ginkgo
 biloba leaves, exts., and phytopharmaceuticals)
 IT Terpenes, analysis
 RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical
 study); BIOL (Biological study)
 (lactones; chemical anal. and quality control of Ginkgo
 biloba leaves, exts., and phytopharmaceuticals)
 IT Ginkgo biloba
 (leaf; chemical anal. and quality control of Ginkgo
 biloba leaves, exts., and phytopharmaceuticals)
 IT Tandem mass spectrometry

(liquid chromatog., combined with; chemical anal. and quality control of Ginkgo biloba leaves, exts., and phytopharmaceuticals)

IT Carboxylic acids, analysis
 RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
 (phenolic; chemical anal. and quality control of Ginkgo biloba leaves, exts., and phytopharmaceuticals)

IT Alcohols, analysis
 Isoprenoids
 RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
 (polyprenoids; chemical anal. and quality control of Ginkgo biloba leaves, exts., and phytopharmaceuticals)

IT Extraction
 (supercrit.; chemical anal. and quality control of Ginkgo biloba leaves, exts., and phytopharmaceuticals)

OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)

REFERENCE COUNT: 589 THERE ARE 589 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 12 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2008:1414342 CAPLUS Full-text

DOCUMENT NUMBER: 150:11255

TITLE: Quality control method of Chinese medicine
 Xinshuningpian

INVENTOR(S): Huang, Xiamin; Feng, Qianling; Chen, Ying; Mai, Yanxia

PATENT ASSIGNEE(S): Guangzhou Qixing Pharmaceutical Co., Ltd., Peop. Rep. China

SOURCE: Faming Zhuanli Shengqing Gongkai Shuomingshu, 12pp.
 CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CN 101306081	A	20081119	CN 2008-10029027	20080626

PRIORITY APPLN. INFO.: CN 2008-10029027 20080626

ED Entered STN: 25 Nov 2008

AB The title method comprises of: (1) identifying total flavone glycosides of Ginkgo biloba leaf in Xinshuningpian by TLC, (2) identifying terpene lactones of Ginkgo biloba by TLC, (3) identifying stachydrine hydrochloride by TLC, (4) identifying Herba Siegesbeckia by TLC, and (5) determining puerarin content by HPLC. The inventive quality control method has improved specificity and stability, and ensures the effectiveness of Xinshuningpian.

CC 64-2 (Pharmaceutical Analysis)

IT Ginkgo biloba
 HPLC
 Leonurus japonicus
 Pharmaceutical tablets
 Quality control
 Siegesbeckia orientalis
 Solvent extraction
 TLC (thin layer chromatography)
 (quality control method of Chinese medicine Xinshuningpian)

IT 3681-99-0, Puerarin 4136-37-2, Stachydrine hydrochloride

Nizal Chandrakumar 10/579,162

15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C
15291-77-7, Ginkgolide B
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical
study); BIOL (Biological study); USES (Uses)
(quality control method of Chinese medicine Xinshuningpian)

L41 ANSWER 13 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2008:382924 CAPLUS Full-text

DOCUMENT NUMBER: 149:61863

TITLE: Study on the technology for extraction and isolation
of ginkgolides

AUTHOR(S): Li, Baomin; Song, Yabing; Yuan, Cheng; Lu, Jianan;
Liu, Yonglin; Sun, Hong; Zong, Zhimin; Xiao, Hongbin

CORPORATE SOURCE: School of Chemical Engineering, China University of
Mining and Technology, Xuzhou, 221008, Peop. Rep.
China

SOURCE: Huagong Shikan (2007), 21(12), 21-24

CODEN: HUSHFT; ISSN: 1002-154X

PUBLISHER: Huagong Shikan Zazhishe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

ED Entered STN: 28 Mar 2008

AB Ginkgolide A, B, C and bilobalide (GA, GB, GC and BB for short) had different
polarities and could be dissolved in different organic solvents. EGB was
dissolved by acetone, Et acetate and Et alc. in turn and then treated them
with column chromatog., and GA, GB, GC and BB valuable components in medicine
could be got, whose concns. were over 80% and they could be separated one by
one.

CC 63-4 (Pharmaceuticals)

IT Chromatography

Dissolution

Extraction

Ginkgo biloba

HPLC

Purity

TLC (thin layer chromatography)

(study on the technol. for extraction and isolation of ginkgolides)

IT 15291-75-5F, Ginkgolide A 15291-76-6P, Ginkgolide C

15291-77-7P, Ginkgolide B 33570-04-6P, Bilobalide

RL: PUR (Purification or recovery); THU (Therapeutic
use); BIOL (Biological study); PREP (Preparation); USES
(Uses)

(study on the technol. for extraction and isolation of ginkgolides)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD
(1 CITINGS)

L41 ANSWER 14 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2007:1484134 CAPLUS Full-text

DOCUMENT NUMBER: 148:128060

TITLE: Method for extracting Ginkgo extracts with low content
of ginkgolic acid

INVENTOR(S): Yuan, Ganjun; Liu, Junbao; Chen, Zhibin; Tu, Rong;
Huang, Hongqian; Su, Qiuling

PATENT ASSIGNEE(S): Hainan Medical College, Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 9pp.

CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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	CN 101091730	A	20071226	CN 2006-10093940	20060623
PRIORITY APPLN. INFO.:				CN 2006-10093940	20060623
ED	Entered SIN: 31 Dec 2007				
AB	<p>The process consists of the following steps: (1) extracting Ginkgo biloba leaves with 25-95% ethanol or 30-100% methanol, concentrating, diluting with water, adjusting pH less than 5 with inorg. acid or organic acid, and filtering, (2) loading on a macroporous adsorbent resin column, and eluting with water-containing ethanol or methanol, (3) extracting eluent with low-polarity organic solvent, concentrating, and drying to obtain Ginkgo biloba exts. (GBE) with low content of ginkgolic acid. The GBE with low content of ginkgolic acid can also be obtained by concentrating the eluate in step 2, drying as raw material, dissolving with 0-95% ethanol or 0-100% methanol, extracting with low-polarity organic solvent, concentrating, and drying, or by concentrating the eluate in step 2, drying as raw material, dissolving with 0-95% ethanol or 0-100% methanol, adsorbing on macroporous adsorbent resin column, eluting with 30-90% methanol or ethanol, concentrating, and drying. The contents of total flavones of Ginkgo, ginkgolides and ginkgolic acid are 28-40%, 6-14% and 5 ppm, resp.</p>				
CC	63-4 (Pharmaceuticals)				
IT	<p>Ginkgo biloba Liquid chromatography Solvent extraction Solvent naphtha (method for extracting Ginkgo exts. with low content of ginkgolic acid)</p>				
IT	<p>15291-75-5F, Ginkgolide A 15291-77-7P, Ginkgolide B RL: PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses) (method for extracting Ginkgo exts. with low content of ginkgolic acid)</p>				

L41 ANSWER 15 OF 34 CAPLUS COPYRIGHT 2010 ACS on SIN
 ACCESSION NUMBER: 2007:1081728 CAPLUS [Full-text](#)
 DOCUMENT NUMBER: 147:455299
 TITLE: Immunoabsorption chromatography method for extracting ginkgolide B
 INVENTOR(S): Yu, Zhou
 PATENT ASSIGNEE(S): Nanchang University, Peop. Rep. China
 SOURCE: Faming Zhuanli Shengqing Gongkai Shuomingshu, 5pp.
 CODEN: CNXXEV
 DOCUMENT TYPE: Patent
 LANGUAGE: Chinese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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	CN 101041661	A	20070926	CN 2007-10051805	20070402
PRIORITY APPLN. INFO.:				CN 2007-10051805	20070402
ED	Entered SIN: 27 Sep 2007				
AB	<p>The title method comprises the steps of: (1) extracting ginkgo leaves with 90% ethanol (3 times of the ginkgo leaves) for 3 times, and concentrating with a rotary evaporator to remove ethanol and obtain the extract, and (2) loading the extract on an immune affinity chromatog. column, washing with phosphate buffer solution for 3 times, and eluting with methanol to obtain ginkgolide B.</p>				
CC	63-4 (Pharmaceuticals)				
	Section cross-reference(s): 9, 28				

ST Ginkgo leaf ginkgolide B immunoabsorption chromatog prepn
 IT Ovalbumin
 RL: NUU (Other use, unclassified); USES (Uses)
 (as protein carrier; immunoabsorption chromatog. method for
 extracting ginkgolide B)
 IT Albumins, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (bovine, as protein carrier; immunoabsorption chromatog.
 method for extracting ginkgolide B)
 IT Ginkgo biloba
 Immunoaffinity chromatography
 Leaf
 (immunoabsorption chromatog. method for extracting ginkgolide B)
 IT Antibodies and Immunoglobulins
 RL: NUU (Other use, unclassified); USES (Uses)
 (monoclonal, to ginkgolide B; immunoabsorption chromatog.
 method for extracting ginkgolide B)
 IT Glass beads
 RL: NUU (Other use, unclassified); USES (Uses)
 (porous, porous; immunoabsorption chromatog. method for extracting
 ginkgolide B)
 IT 9004-34-6, Cellulose, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (as solid carrier; immunoabsorption chromatog. method for
 extracting ginkgolide B)
 IT 9003-05-8, Polyacrylamide 9012-36-6, Sepharose 9014-76-0, Sephadex
 RL: NUU (Other use, unclassified); USES (Uses)
 (immunoabsorption chromatog. method for extracting ginkgolide B)
 IT 15291-77-7P, Ginkgolide b
 RL: PUR (Purification or recovery); THU (Therapeutic
 use); BIOL (Biological study); PREP (Preparation); USES
 (Uses)
 (immunoabsorption chromatog. method for extracting ginkgolide B)

L41 ANSWER 16 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2007:675848 CAPLUS [Full-text](#)
 DOCUMENT NUMBER: 147:125785
 TITLE: Manufacture and application of traditional Chinese
 medicinal composition for treating cardiovascular and
 cerebrovascular diseases
 INVENTOR(S): Yu, Wenfeng
 PATENT ASSIGNEE(S): Beijing Qiyuanyide Medicine Institute, Peop. Rep.
 China
 SOURCE: Faming Zhuanli Shengqing Gongkai Shuomingshu, 12pp.
 CODEN: CNXXEV
 DOCUMENT TYPE: Patent
 LANGUAGE: Chinese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CN 1981794	A	20070620	CN 2005-10134201	20051212

PRIORITY APPLN. INFO.: CN 2005-10134201 20051212

ED Entered STN: 22 Jun 2007

AB The title medicinal composition is composed of (by%) total saponins of Panax ginseng 1-99, ginkgolides 99-1, and adjuvants. The medical composition can be prepared into injections, infusions, injection powders, tablets, capsules, granules, dripping pills, pills, oral solns., soft capsules, etc. The medical composition can be used for preparing drugs for treating ischemic cerebral

apoplexy, coronary heart disease, angina pectoris, heart failure, apoplexy
sequela, hepatorenal syndrome, pulmonary heart disease, diabetes mellitus and
its complication, etc.

CC 63-6 (Pharmaceuticals)

Section cross-reference(s): 1

IT Angina pectoris
Anticoagulants
Brain ischemia
Cardiovascular agents
Cardiovascular disease
Cerebrovascular disease
Coronary artery disease
Diabetes mellitus
Dripping pills
Freeze drying
 Ginkgo biloba
Heart failure
Liquid chromatography
Myocardial ischemia
Natural products, pharmaceutical
Panax ginseng
Pharmaceutical capsules
Pharmaceutical granules
Pharmaceutical injections
Pharmaceutical liposomes
Pharmaceutical liposomes
Pharmaceutical powders
Pharmaceutical tablets
Platelet aggregation inhibitors
Precipitation (chemical)
Pulverization
Solvent extraction
Stroke
 (manufacture and application of traditional Chinese medicinal composition
for
 treating cardiovascular and cerebrovascular diseases)

IT 15291-75-5DE, Ginkgolide A, derivs., ginkgolides
RL: PAC (Pharmacological activity); PUR (Purification or recovery)
; THU (Therapeutic use); BIOL (Biological study); PREP
(Preparation); USES (Uses)
 (manufacture and application of traditional Chinese medicinal composition
for
 treating cardiovascular and cerebrovascular diseases)

L41 ANSWER 17 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2007:675842 CAPLUS Full-text

DOCUMENT NUMBER: 147:125781

TITLE: Manufacture and application of traditional Chinese
medicinal composition for treating cardiovascular and
cerebrovascular diseases

INVENTOR(S): Yu, Wenfeng

PATENT ASSIGNEE(S): Beijing Qiyuanide Medicine Institute, Peop. Rep.
China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 12pp.
CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

Nizal Chandrakumar 10/579,162

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1981777	A	20070620	CN 2005-10130098	20051212
PRIORITY APPLN. INFO.:				
ED Entered STN: 22 Jun 2007				
AB The title medicinal composition is composed of (by%) total saponins of Panax notoginseng 1-99, total flavones and ginkgolides of Ginkgo biloba leaf 99-1, and adjuvants. The medical composition can be prepared into injections, infusions, injection powders, tablets, capsules, granules, dripping pills, pills, oral solns., soft capsules, etc. The medical composition can be used for preparing drugs for treating ischemic cerebral apoplexy, coronary heart disease, angina pectoris, heart failure, apoplexy sequela, hepatorenal syndrome, pulmonary heart disease, diabetes mellitus and its complication, etc.				
CC 63-6 (Pharmaceuticals)				
Section cross-reference(s): 1				
IT Flavones				
RL: PAC (Pharmacological activity); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)				
(Ginkgo biloba leaf; manufacture and application of traditional Chinese medicinal composition for treating cardiovascular and cerebrovascular diseases)				
IT Ginkgo biloba				
(leaf; manufacture and application of traditional Chinese medicinal composition for treating cardiovascular and cerebrovascular diseases)				
IT Angina pectoris				
Anticoagulants				
Brain ischemia				
Cardiovascular agents				
Cardiovascular disease				
Cerebrovascular disease				
Coronary artery disease				
Diabetes mellitus				
Dripping pills				
Freeze drying				
Heart failure				
Liquid chromatography				
Myocardial ischemia				
Natural products, pharmaceutical				
Panax notoginseng				
Pharmaceutical capsules				
Pharmaceutical granules				
Pharmaceutical injections				
Pharmaceutical liposomes				
Pharmaceutical liposomes				
Pharmaceutical powders				
Pharmaceutical tablets				
Platelet aggregation inhibitors				
Precipitation (chemical)				
Pulverization				
Solvent extraction				
Stroke				
(manufacture and application of traditional Chinese medicinal composition for treating cardiovascular and cerebrovascular diseases)				
IT 15291-75-55P, Ginkgolide A, derivs., ginkgolides				
RL: PAC (Pharmacological activity); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); PREP				

(Preparation); USES (Uses)

(Ginkgo biloba leaf; manufacture and application of traditional Chinese medicinal composition for treating cardiovascular and cerebrovascular diseases)

L41 ANSWER 18 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2007:597593 CAPLUS Full-text

DOCUMENT NUMBER: 147:101987

TITLE: New formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases

INVENTOR(S): Yu, Wenfeng

PATENT ASSIGNEE(S): Beijing Qiyuanyide Medicine Institute, Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 14pp. CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CN 1969892	A	20070530	CN 2005-10115004	20051123
PRIORITY APPLN. INFO.:			CN 2005-10115004	20051123

ED Entered STN: 04 Jun 2007

AB The invention provides new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases. The pharmaceutical composition is composed of (by weight part) troxerutin 1, and Ginkgo biloba leaf flavonoids 0.1-50 or lactones 0.01-50 or mixture of lactones and flavonoids 0.1-30. The pharmaceutical composition can be manufactured into injections, oral preps., etc. The pharmaceutical composition is used for treating coronary heart disease, angina pectoris, myocardial infarction, arrhythmia, cerebral thrombosis, senile dementia, thrombophlebitis, capillary bleeding, diabetes mellitus and complications, hepatorenal syndrome, etc. The manufacturing and quality control methods are also disclosed. The pharmaceutical composition has advantages of high purity, definite constituent, controllable quality, enhanced therapeutic effect, reliable security and stable efficacy.

CC 63-6 (Pharmaceuticals)

Section cross-reference(s): 1, 64

IT Flavonoids

Lactones

RL: ANT (Analyte); PAC (Pharmacological activity); PRP (Properties); PUR (Purification or recovery); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)

(Ginkgo biloba; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)

IT Charcoal

RL: NUU (Other use, unclassified); USES (Uses)

(activated; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)

IT Antiarteriosclerotics

(antiatherosclerotics; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)

IT Pharmaceutical excipients

- (disintegrants; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)
- IT Pharmaceutical tablets
(effervescent tablets; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)
- IT Glycosides
RL: ANT (Analyte); PAC (Pharmacological activity); PRP (Properties); PUR (Purification or recovery); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(flavonoid; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)
- IT Freeze-dried drug delivery systems
Pharmaceutical injections
(freeze-dried injectable drug delivery systems; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)
- IT Infusion drug delivery systems
(i.v. infusions; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)
- IT Pharmaceutical injections
(i.v. injections; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)
- IT Terpenes
RL: ANT (Analyte); PAC (Pharmacological activity); PRP (Properties); PUR (Purification or recovery); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(lactones; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)
- IT Pharmaceutical microparticles
(microtablets; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)
- IT Anti-Alzheimer's agents
Antiarrhythmics
Anticonvulsants
Antidiabetic agents
Cardiovascular agents
Dripping pills
Flocculation
Freeze drying
Ginkgo biloba
Human
Liquid chromatography
Oral drug delivery systems
Pharmaceutical capsules
Pharmaceutical films
Pharmaceutical granules
Pharmaceutical liposomes
Pharmaceutical powders
Pharmaceutical tablets
Platelet aggregation inhibitors
Quality control
Sedimentation (separation)

Solvent extraction

Stability

(new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)

IT Oral drug delivery systems

Pharmaceutical solutions

(oral solns.; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)

IT Drug interactions

(pharmacodynamic; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)

IT Drying

(spray; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)

IT Pharmaceutical tablets

(sublingual tablets; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)

IT Inflammation

Vein, disease

(thrombophlebitis, treatment of; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)

IT Alzheimer disease

Angina pectoris

Atherosclerosis

Cardiac arrhythmia

Coronary artery disease

Diabetes mellitus

Hemostatics

Myocardial infarction

Thrombolytics

(treatment of; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)

IT 7085-55-4, Troxerutin

RL: ANT (Analyte); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

(new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)

IT 64-17-5, Ethanol, uses

RL: NUU (Other use, unclassified); USES (Uses)

(new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)

IT 50-70-4, Sorbitol, biological studies 56-40-6, Glycine, biological

studies 57-55-6, Propylene glycol, biological studies 59-23-4,

Galactose, biological studies 69-65-8, Mannitol 9003-39-8,

Polyvinylpyrrolidone 9004-54-0, Dextran, biological studies 9004-64-2,

Hydroxypropylcellulose

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)

L41 ANSWER 19 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2007:339577 CAPLUS Full-text
 DOCUMENT NUMBER: 146:408191
 TITLE: Method for extracting active ingredients from
 Ginkgo biloba leaf by using two
 resin columns
 INVENTOR(S): Zhang, Liming; Lu, Fuping; Wang, Yan
 PATENT ASSIGNEE(S): Liaoning Dasheng Pharmaceutical Co., Ltd., Peop. Rep.
 China
 SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 8pp.
 CODEN: CNXXEV
 DOCUMENT TYPE: Patent
 LANGUAGE: Chinese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1931199	A	20070321	CN 2006-10200908	20060925
CN 100418543	C	20080917		

PRIORITY APPLN. INFO.: CN 2006-10200908 20060925

ED Entered STN: 26 Mar 2007

AB The title method comprises pretreating ADS-17 and ADS-F8 resins with water-ethanol-hydrochloric acid method, extracting Ginkgo biloba leaves with ethanol solution under refluxing and stirring at 68-72°, performing adsorption and clarification of the extractive solution with ZTC-II clarifier B for 30-50 min and then ZTC-II clarifier A for 30-50 min at 38-42°, filtering or centrifuging, adding water and standing for 8-12 h, filtering or centrifuging to remove fat-soluble substances, purifying with ADS-17 chromatog. column, separating ketone and ester with ADS-F8 chromatog. column, detecting content of ginkgolic acid by HPLC to make sure its concentration is below 5 µg/g, and manufacturing into the final product. The method has the advantages of reasonable process, high extraction rate, and high content of active ingredients, definite therapeutic effect and convenient administration.

CC 63-4 (Pharmaceuticals)

IT Adsorption
 Ginkgo biloba
 HPLC
 Liquid chromatography
 Quality control
 Solvent extraction
 (method for extracting active ingredients from Ginkgo biloba leaf by using two resin columns)

IT 64-17-5, Ethanol, uses 7647-01-0, Hydrochloric acid, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (method for extracting active ingredients from Ginkgo biloba leaf by using two resin columns)

IT 481-46-9P, Ginkgetin 22910-60-7P, Ginkgolic acid 33570-04-6P
 , Bilobalide
 RL: PUF (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (method for extracting active ingredients from Ginkgo biloba leaf by using two resin columns)

IT 256463-70-4, ADS 17 926021-63-8, ADS-F 8
 RL: TEM (Technical or engineered material use); USES (Uses)
 (method for extracting active ingredients from Ginkgo biloba leaf by using two resin columns)

L41 ANSWER 20 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2006:1272234 CAPLUS [Full-text](#)
 DOCUMENT NUMBER: 146:149217
 TITLE: Quantitative determination of ginkgolides by liquid chromatography-electrospray mass spectrometry
 AUTHOR(S): Zhou, Xin; Zhang, Xueqin; Yuan, Mu; Wang, Daoping
 CORPORATE SOURCE: The Key Laboratory of Chemistry for Natural Products of Guizhou Province and Chinese Academy of Sciences, Guiyang, 550002, Peop. Rep. China
 SOURCE: Zhongguo Zhongyao Zazhi (2005), 30(24), 1915-1918
 CODEN: ZZZAE3; ISSN: 1001-5302
 PUBLISHER: Zhongguo Zhongyao Zazhishe
 DOCUMENT TYPE: Journal
 LANGUAGE: Chinese
 ED Entered STN: 06 Dec 2006
 AB A method based on liquid chromatog. coupled with electrospray mass spectrometry (LC-ESI-MS) for the anal. of terpenoids in ginkgo laminae was reported. The anal. was performed on Zorbax RX-C18 (2.1 mm x 150 mm) column with methanol-water (with gradient elution) as mobile phase at a flow rate 0.25 mL/min and column temperature 25°. The anal. was carried out in the selected ion monitoring mode. Ginkgolides (GA, GB, and CC) and bilobalide were quant. detected by external standardization. The linear range was 4.04-101.2 ng, detection limit 1.47 x 10⁻³-0.320 µg/mL, and RSD 2.50-4.73%. LC-ESI-MS shows highly enhanced sensitivity as compared with other methods.
 CC 64-2 (Pharmaceutical Analysis)
 IT Ginkgo biloba
 Natural products, pharmaceutical
 (ginkgolides determination by liquid chromatog.-electrospray mass spectrometry)
 IT Mass spectrometry
 (liquid chromatog. combined with; ginkgolides determination by liquid chromatog.-electrospray mass spectrometry)
 IT Liquid chromatography
 (mass spectrometry combined with; ginkgolides determination by liquid chromatog.-electrospray mass spectrometry)
 IT 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C
 15291-77-7, Ginkgolide B 33570-04-6, Bilobalide
 RL: ANT (Analyte); NPO (Natural product occurrence); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); USES (Uses)
 (ginkgolides determination by liquid chromatog.-electrospray mass spectrometry)
 OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L41 ANSWER 21 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2006:1215169 CAPLUS [Full-text](#)
 DOCUMENT NUMBER: 146:517243
 TITLE: Determination of ginkgolides in Ginkgo biloba by capillary gas chromatography
 AUTHOR(S): Liu, Hong-mei; Zhou, Qing-xia; Yang, Wen-ling
 CORPORATE SOURCE: College of Chemical and Pharmaceutical Engineering, Hebei University of Science and Technology, Shijiazhuang, Hebei, 050018, Peop. Rep. China
 SOURCE: Hebei Keji Daxue Xuebao (2006), 27(3), 209-213
 CODEN: HKDXFY; ISSN: 1008-1542
 PUBLISHER: Hebei Keji Daxue Xuebao Bianjibu
 DOCUMENT TYPE: Journal
 LANGUAGE: Chinese
 ED Entered STN: 20 Nov 2006

AB The optimum conditions of chromatograph separation were selected for the ginkgolides: bilobalide (BB), ginkgolide A (GA), ginkgolide J (GJ), ginkgolide B (GB) and ginkgolide C (GC). Selecting squalane (SQ) as an internal standard, the weight correction factors of ginkgolides were confirmed by measurement and theor. calcn. The contents of the five ginkgolides were determined by internal standard method. The average recoveries of the method for BB, GA, GB and GC were 92.8%, 93.2%, 92.4% and 94.4%, and RSD were 2.9%, 1.6%, 2.2%, 1.9% and 1.9% resp.

CC 9-3 (Biochemical Methods)
Section cross-reference(s): 64

ST ginkgolide capillary gas chromatog Ginkgo

IT Flame ionization detectors
Gas chromatography
Ginkgo biloba
(determination of ginkgolides in Ginkgo biloba by capillary gas chromatog.)

IT 7631-86-9, Silicon dioxide, analysis
RL: AMX (Analytical matrix); ANST (Analytical study)
(determination of ginkgolides in Ginkgo biloba by capillary gas chromatog.)

IT 15291-75-5P, Ginkgolide A 15291-76-6P, Ginkgolide C
15291-77-7P, Ginkgolide B 33570-04-6P, Bilobalide
107436-79-9P, Ginkgolide J
RL: ANT (Analyte); PUR (Purification or recovery); ANST (Analytical study); PREP (Preparation)
(determination of ginkgolides in Ginkgo biloba by capillary gas chromatog.)

IT 67-56-1, Methanol, analysis 67-64-1, Acetone, analysis 68-12-2, N, N-Dimethylformamide, analysis 75-77-4, Trimethylchlorosilane, analysis 108-88-3, Toluene, analysis 110-54-3, n-Hexane, analysis 111-01-3, Squalane 141-78-6, Ethyl acetate, analysis 7727-37-9, Nitrogen, analysis 25561-30-2, Bis(trimethylsilyl)trifluoroacetamide
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(determination of ginkgolides in Ginkgo biloba by capillary gas chromatog.)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L41 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN
ACCESSION NUMBER: 2006:1164539 CAPLUS [Full-text](#)
DOCUMENT NUMBER: 145:511322
TITLE: Quality control method for injection containing ginkgo and Salvia miltiorrhiza
INVENTOR(S): Yu, Wenying
PATENT ASSIGNEE(S): Guiyang Yunyan Xichuang Medicinal Technology Development Co., Ltd., Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 82pp. CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CN 1853674	A	20061101	CN 2006-10200071	20060124
CN 101156893	A	20080409	CN 2007-10201880	20060124
CN 101156894	A	20080409	CN 2007-10201885	20060124
PRIORITY APPLN. INFO.:			CN 2005-10003011	A 20050207
			CN 2006-10200071	A3 20060124

ED Entered STN: 07 Nov 2006

AB The method comprises fingerprint spectrum testing, identifying the ingredient of ginkgo, ginkgo extract, total flavonoids, and total terpene lactones, measuring the ingredient of Salvia miltiorrhiza extract or its sodium salt, protocatechuic aldehyde, lithosperman B or its magnesium salt, tanshinone IIA, quercetin, and kaempferide. Compared with existing technol., the claimed method is more effective, more accurate, and more stable.

CC 63-4 (Pharmaceuticals)

IT Ginkgo biloba
HPLC
Natural products, pharmaceutical
Quality control
Salvia miltiorrhiza
Spectrophotometry
TLC (thin layer chromatography)
(quality control method for injection containing ginkgo and Salvia miltiorrhiza)

IT 50-99-7, D-Glucose, biological studies 117-39-5, Quercetin 139-85-5, Protocatechuic aldehyde 480-19-3, Isorhamnetin 486-66-8, Daidzein 520-18-3, Kaempferol 568-72-9, Tanshinone IIA 9004-32-4, Sodium carboxymethyl cellulose 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7, Ginkgolide B 22910-60-7, Ginkgolic acid 33570-04-6, Bilobalide 40644-73-3 98112-96-0, Lithosperman B 122021-74-3
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(quality control method for injection containing ginkgo and Salvia miltiorrhiza)

L41 ANSWER 23 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2006:907292 CAPLUS Full-text

DOCUMENT NUMBER: 145:342646

TITLE: Quality control of ginkgo orally disintegrating tablet

INVENTOR(S): Ye, Xiangwu; Zhang, Mei

PATENT ASSIGNEE(S): Guizhou Yibai Pharmaceutical Co., Ltd., Peop. Rep. China

SOURCE: Faming Zhuanli Shengqing Gongkai Shuomingshu, 26pp.
CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CN 1823852	A	20060830	CN 2005-10003342	20051229
CN 100520404	C	20090729		

PRIORITY APPLN. INFO.:

CN 2005-10003342 20051229

ED Entered STN: 06 Sep 2006

AB The patent relates to quality control which has good precision, sensitivity and stability to ensure that the product is safe, even, stable, effective, controllable, etc. The tablet is comprised of Ginkgo biloba extract and pharmaceutic adjuvant at a ratio of 1-10:10-1. The pharmaceutic adjuvant is selected from Et cellulose, mannite, sodium carboxymethyl starch, cross-linked polyvinylpyrrolidone, low-substituted hydroxypropyl cellulose, microcryst. cellulose, aspartame, silica gel, and magnesium stearate, etc. The quality control comprises observing character, checking content according to pharmacopoeia method, and identifying flavonol glycosides and terpene lactones and determining the content of them. The differentiation process consists of grinding the product, adding 10-50% HCl and methanol (1-9:9-1), reflux extracting, filtering, adding distilled water, volatilizing partial solution,

extracting with ether for 1-6 times, washing with water 1-5 times, evaporating to dryness, adding methanol to the residue as sample for test, weighing Ginkgo biloba extract and preparing the solution of Ginkgo biloba extract, determining with thin-layer chromatog. (TLC) with toluene, Et acetate, acetone and formic acid (1-20:0.1-50.1-5:0.05-0.5) as developing agent and developing, air drying, spraying 1-10% ethanol solution of aluminum chloride, and observing the color; dotting terpene lactone solution for test and check solution on the same silica gel thin-layer plate with toluene, Et acetate, acetone and formic acid (5-20:1-10:1-10:0.1-1) as as developing agent and developing at 20°, air drying, fumigating with acetic anhydride steam, heating at 140-160°, cooling, viewing, and determining The content of flavonol glycosides and terpene lactones in the tablets is determined by HPLC scanning from 200 nm to 500 nm on C18 column with methanol-0.01-0.1 mol potassium dihydrogen phosphate (1-9:9-1) as mobile phase.

CC 64-2 (Pharmaceutical Analysis)

IT Section cross-reference(s): 63

IT Cardiovascular agents

Ginkgo biloba

HPLC

Natural products, pharmaceutical

Quality control

TLC (thin layer chromatography)

(quality control of orally disintegrating tablets containing Ginkgo exts.)

IT 117-39-5, Quercetin 480-19-3, Isorhamnetin 491-54-3, Kaempferide

15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C

15291-77-7, Ginkgolide B

RL: AMX (Analytical matrix); PEP (Physical, engineering or chemical

process); PYP (Physical process); THU (Therapeutic use); ANST

(Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)

(quality control of orally disintegrating tablets containing Ginkgo exts.)

L41 ANSWER 24 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2006:815138 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 145:299230

TITLE: Ginkgo leaf orally disintegrating tablet and its preparation and quality control methods

INVENTOR(S): Chen, Fagui; Wang, Tianxing; Xu, Lijun

PATENT ASSIGNEE(S): Zhejiang Dade Pharmaceutical Group Co., Ltd., Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 36pp. CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CN 1813826	A	20060809	CN 2005-10200764	20051205
CN 100381115	C	20080416		
PRIORITY APPLN. INFO.:			CN 2005-10200764	20051205

ED Entered SIN: 17 Aug 2006

AB The title orally disintegrating tablet(1000 tablets) is composed of ginkgo leaf extract 80, microcrystal cellulose 183, crosslinked polyvinylpyrrolidone 35, low substituted hydroxypropylmethyl cellulose 75, aspartame 7, menthol 0.1 g, wherein each tablet contains total flavonoids 19.2 and terpene 4.8 mg. The title orally disintegrating tablet is prepared by mixing ginkgo leaf extract, microcrystal cellulose, low substituted hydroxypropylmethyl cellulose, crosslinked polyvinylpyrrolidone with aspartame, pelletizing with 95% ethanol, drying, spraying menthol ethanol solution, sealing for 10 h and tableting.

The total flavonoids in the disintegrating tablet are identified by TLC with Et acetate-butanol-methanol-water(5:3:1:1) as developing agent and ginkgo leaf extract as control; terpene is identified by TLC with ginkgolide A, ginkgolide B, ginkgolide C and bilobalide as control and toluene:ethyl acetate: acetone:methanol(10:5:5:0.6) as developing agent. The total flavonoids content in the disintegrating tablet are determined by HPLC on octadecyl silane column at 360 nm with methanol-0.4% phosphoric acid(50:50) as mobile phase and quercetin-kaempferol-isorhamnetin as control; terpene in the disintegrating tablet is determined by HPLC on octadecyl silane column with methanol-tetrahydrofuran-water(25:10:65) as mobile phase and ginkgolide A-ginkgolide B-ginkgolide C-bilobalide as control. The flavonoids peak area ratio and disintegration time are also checked. The inventive product disintegrates and acts more quickly than the existed orally disintegrating tablet.

CC 63-4 (Pharmaceuticals)

IT Cytoprotective agents

Dissolution

Ginkgo biloba

HPLC

Leaf

Natural products, pharmaceutical

Quality control

TLC (thin layer chromatography)

(ginkgo leaf orally disintegrating tablet and its preparation and quality control methods)

IT 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C

15291-77-7, Ginkgolide B 33570-04-6, Bilobalide

RL: ANT (Analyte); NPO (Natural product occurrence); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); USES (Uses)

(ginkgo leaf orally disintegrating tablet and its preparation and quality control methods)

L41 ANSWER 25 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2005:1319245 CAPLUS [Full-text](#)

DOCUMENT NUMBER: 144:40971

TITLE: Simultaneous quantification of terpenelactones and flavonol aglycones in hydrolyzed Ginkgo biloba extract by liquid chromatography with inline ultraviolet and evaporative light scattering detection

AUTHOR(S): Gray, Dean E.; Messer, Dale; Porter, Andrew; Ferguson, Sherry; Harris, Roger K.; Clark, Alice P.; Algaier, Joseph W.; Overstreet, J. Diane; Smith, Cynthia S.

CORPORATE SOURCE: Midwest Research Institute, Kansas City, MO, 64110-2299, USA

SOURCE: Journal of AOAC International (2005), 88(6), 1613-1620
CODEN: JAINEE; ISSN: 1060-3271

PUBLISHER: AOAC International

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 19 Dec 2005

AB The authors report here a liquid chromatog. (LC) method with inline UV/evaporative light scattering (UV/ELS) detection for the simultaneous quantification of the terpenelactones and flavonol aglycons in a single sample of hydrolyzed Ginkgo biloba extract (GBE). The sample is hydrolyzed by a rapid and convenient oven heating method for 1 h at 90°C with 10% hydrochloric acid. The 1 h hydrolysis was found to be equivalent to the 2.25 h reflux treatment for dry powder extract, where total flavonol glycosides were 28.4 and 28.1%, resp. Acceptable precision was achieved for total terpenelactones

[relative standard deviation (RSD) = 4.8%] by ELS detection, and total flavanol aglycons (RSD = 2.3%) by UV detection. The anal. range was 1.5 to 7.3% (weight/weight) for the individual terpenelactones (ELS) and 2.5 to 15.0% (weight/weight) for the individual glycosides (UV) calculated from the aglycons quercetin, kaempferol, and isorhamnetin. This improved method allows for the 1st time high throughput sample preparation coupled with the quantification of the predominant compds. generally used for quality control of GBE in a single assay.

CC 64-2 (Pharmaceutical Analysis)
 Section cross-reference(s): 63

ST terpenelactone flavanol aglycon detn Ginkgo biloba liq
 chromatog stability

IT Hydrolysis
 (acid; quantification of terpenelactones and flavanol aglycons in hydrolyzed Ginkgo biloba extract by LC)

IT Ginkgo biloba
 (extract; quantification of terpenelactones and flavanol aglycons in hydrolyzed Ginkgo biloba extract by LC)

IT Terpenes, analysis
 RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
 (lactones; quantification of terpenelactones and flavanol aglycons in hydrolyzed Ginkgo biloba extract by LC)

IT Antioxidants
 (natural; quantification of terpenelactones and flavanol aglycons in hydrolyzed Ginkgo biloba extract by LC)

IT Cytoprotective agents
 Nervous system agents
 (neuroprotective agents; quantification of terpenelactones and flavanol aglycons in hydrolyzed Ginkgo biloba extract by LC)

IT Anti-ischemic agents
 Anticoagulants
 Liquid chromatography
 Quality control
 Stability
 (quantification of terpenelactones and flavanol aglycons in hydrolyzed Ginkgo biloba extract by LC)

IT Flavonoids
 RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
 (quantification of terpenelactones and flavanol aglycons in hydrolyzed Ginkgo biloba extract by LC)

IT 117-39-5, Quercetin 480-19-3, Isorhamnetin 520-18-3, Kaempferol 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7, Ginkgolide B 33570-04-6, Bilobalide
 RL: ANT (Analyte); CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
 (quantification of terpenelactones and flavanol aglycons in hydrolyzed Ginkgo biloba extract by LC)

OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 26 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2005:1061219 CAPLUS [Full-text](#)
 DOCUMENT NUMBER: 143:455133
 TITLE: Preparative isolation of terpenelactones from Ginkgo

biloba leaves
 AUTHOR(S): Lai, Shih-Ming; Chen, I-Wen; Tsai, Ming-Jyi
 CORPORATE SOURCE: Department of Chemical Engineering, National Yunlin
 University of Science and Technology, Yunlin, 640,
 Taiwan
 SOURCE: Journal of Chromatography, A (2005), 1092(1), 125-134
 CODEN: JCRAEY; ISSN: 0021-9673
 PUBLISHER: Elsevier B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 04 Oct 2005
 AB This study investigated and compared some techniques for the preparative
 isolation of terpene trilactones, including ginkgolides (GA and GB, etc.) and
 bilobalide (BB), from Ginkgo biloba leaves. The crude Ginkgo biloba L. exts.
 (GBE) were prepared using an extractor with solvent refluxing operated under
 an optimal extraction condition. The extraction yield was 20-23% and the
 purity of terpene trilactones was about 1.0-1.4 wt%. Before the isolation
 operations, the exts. were dissolved in de-ionized water. The isolation
 procedures included the method of liquid-liquid extraction and the method of
 column chromatog. For the method of liquid-liquid extraction using Et acetate
 as the organic solvent operated under the optimal extraction conditions, the
 purity, concentration ratio, and yield of terpene trilactones were 13.5-18.0%,
 15-16, and >99%. For the method of column chromatog., XAD-7HP, XAD-4, and C-
 18 adsorbents with different polarities were used as the packing materials.
 Only for the XAD-7HP column, a part of more polar impurities was efficiently
 separated with the majority of terpene trilactones by a proper step-gradient
 elution, which resulted in an efficient isolation: the purity, concentration
 ratio, and yield of terpene trilactones were .apprx.20, .apprx.15, and
 .apprx.80%. In comparison, the XAD-7HP column achieved the highest purity,
 but at the expense of the yield of terpene trilactones; on the contrary, the
 liquid-liquid extraction method, achieving the highest yield but with a
 slightly lower purity, proved to be superior to the method of column
 chromatog. in the current isolation stage.
 CC 9-3 (Biochemical Methods)
 ST terpene trilactone Ginkgo leaf liq
 chromatog; liq extn terpene trilactone
 Ginkgo leaf
 IT Extraction
 (liquid-liquid; preparative isolation of terpene
 trilactones from Ginkgo biloba leaves)
 IT Ginkgo biloba
 HPLC
 Leaf
 Liquid chromatography
 (preparative isolation of terpene trilactones from
 Ginkgo biloba leaves)
 IT Terpenes, preparation
 RL: PUR (Purification or recovery); PREP (Preparation)
 (trilactones; preparative isolation of terpene
 trilactones from Ginkgo biloba leaves)
 IT 141-78-6, Ethyl acetate, uses 220455-89-0, Amberlite XAD 7HP
 RL: NUU (Other use, unclassified); USES (Uses)
 (preparative isolation of terpene trilactones from
 Ginkgo biloba leaves)
 OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD
 (4 CITINGS)
 REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

Nizal Chandrakumar 10/579,162

ACCESSION NUMBER: 2005:644914 CAPLUS Full-text
 DOCUMENT NUMBER: 143:216806
 TITLE: Development of a Ginkgo biloba fingerprint chromatogram with UV and evaporative light scattering detection and optimization of the evaporative light scattering detector operating conditions
 AUTHOR(S): van Nederkassel, A. M.; Vijverman, V.; Massart, D. L.; Vander Heyden, Y.
 CORPORATE SOURCE: Department of Analytical Chemistry and Pharmaceutical Technology, Pharmaceutical Institute, Vrije Universiteit Brussel-VUB, Brussels, 1090, Belg.
 SOURCE: Journal of Chromatography, A (2005), 1085(2), 230-239
 CODEN: JCRAEY; ISSN: 0021-9673
 PUBLISHER: Elsevier B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 25 Jul 2005

AB A fingerprint chromatogram of a standardized Ginkgo biloba extract is developed on a monolithic silica column using a ternary gradient containing water, iso-propanol and THF. For the detection, UV and evaporative light scattering (ELS) detectors are used, the latter allowing detection of the poor UV absorbing compds. as ginkgolides (A-C and J) and bilobalide in the extract. The complementary information between the UV and ELS fingerprint is evaluated. The ELS detector used in this study can operate in an impactor on' or off' mode. For each mode, the operating conditions such as the nebulizing gas flow rate, the drift tube temperature, and the gain are optimized by use of 3-level screening designs to obtain the best signal-to-noise (S/N) ratio in the final ELS fingerprint chromatogram. In both impactor modes, very similar S/N ratios are obtained for the nominal levels of the design. However, optimization of the operating conditions resulted, for both impactor modes, in a significant increase in S/N ratios compared to the initial evaluated conditions, obtained from the detector software.

CC 64-2 (Pharmaceutical Analysis)
 ST Ginkgo biloba fingerprint chromatogram HPLC
 evaporative light scattering

IT HPLC
 (Ginkgo biloba fingerprint chromatogram
 with UV and evaporative light scattering detection)

IT Ginkgo biloba
 (development of a Ginkgo biloba fingerprint
 chromatogram with UV and evaporative light scattering detection
 and optimization of the evaporative light scattering detector operating
 conditions)

IT Liquid chromatographic detectors
 (light-scattering; Ginkgo biloba fingerprint
 chromatogram with UV and evaporative light scattering
 detection)

IT 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C
 15291-77-7, Ginkgolide B 33570-64-6, Bilobalide
 107438-79-9, Ginkgolide J
 RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical
 study); BIOL (Biological study); USES (Uses)
 (Ginkgo biloba fingerprint chromatogram
 with UV and evaporative light scattering detection)

OS.CITING REF COUNT: 22 THERE ARE 22 CAPLUS RECORDS THAT CITE THIS
 RECORD (22 CITINGS)

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

Nizal Chandrakumar 10/579,162

L41 ANSWER 28 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2005:507012 CAPLUS Full-text
 DOCUMENT NUMBER: 143:353291
 TITLE: Extraction of terpene lactone from Ginkgo biloba leaves
 INVENTOR(S): Dai, Baixiong; Gong, Ting; Qian, Jun
 PATENT ASSIGNEE(S): Sanjiangyuan Pharmaceutical Co., Ltd., Suizhou City, Peop. Rep. China
 SOURCE: Faming Zhuanli Shengqing Gongkai Shuomingshu, No pp. given
 CODEN: CNXXEV
 DOCUMENT TYPE: Patent
 LANGUAGE: Chinese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
	CN 1530363	A	20040922	CN 2003-119744	20030311
	CN 1301988	C	20070228		
PRIORITY APPLN. INFO.:				CN 2003-119744	20030311
ED	Entered STN: 14 Jun 2005				
AB	The title extraction process includes: (1) pulverizing Ginkgo biloba leaves, (2) extracting the powders by ethanol at 75-85°C, (3) concentrating the extract, (4) adding water into the extract and filtrating, (5) loading the filtrate on a macroporous resin chromatog. column and eluting it by ethanol, (6) concentrating the eluate and extracting it by Et acetate, and (7) concentrating the extract and drying to obtain the product. The product can be used for treating senile dementia, cardiovascular diseases and cerebrovascular diseases. This process is low cost, low environment pollution, and is suitable for industrial production				
IC	ICM C07D311-30				
	ICS A61P025-28; A61P009-10				
CC	63-4 (Pharmaceuticals)				
IT	Brain, disease (cerebrovascular; extraction of terpene lactone from Ginkgo biloba leaves)				
IT	Cardiovascular system, disease Ginkgo biloba Human Liquid chromatography Solvent extraction (extraction of terpene lactone from Ginkgo biloba leaves)				
IT	Mental and behavioral disorders (senile psychosis; extraction of terpene lactone from Ginkgo biloba leaves)				
IT	64-17-5, Ethanol, uses 127-09-3, Sodium acetate 141-78-6, Ethyl acetate, uses 676466-31-2, HPD 100 RL: NUU (Other use, unclassified); USES (Uses) (extraction of terpene lactone from Ginkgo biloba leaves)				
IT	15291-75-5P, Ginkgolide A 15291-76-6P, Ginkgolide C 15291-77-7P, Ginkgolide B 33570-04-6P, Bilobalide RL: PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses) (extraction of terpene lactone from Ginkgo biloba leaves)				

Nizal Chandrakumar 10/579,162

L41 ANSWER 29 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2005:451255 CAPLUS Full-text
 DOCUMENT NUMBER: 142:487413
 TITLE: Separation of ginkgolides and bilobalide from
 Ginkgo biloba using column
 chromatography
 INVENTOR(S): Nakanishi, Koji; Jaracz, Stanislaw; Malik, Shahid;
 Ishii, Hideki; Dzyuba, Sergei V.
 PATENT ASSIGNEE(S): The Trustees of Columbia University In the City of New
 York, USA
 SOURCE: PCT Int. Appl., 61 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005046829	A2	20050526	WO 2004-US37412	20041109
WO 2005046829	A3	20051110		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, CA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 20080108837	A1	20080508	US 2007-579162	20070905
PRIORITY APPLN. INFO.:			US 2003-519840P	P 20031112
			WO 2004-US37412	W 20041109

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 142:487413

ED Entered STN: 27 May 2005

AB The subject invention provides a method for separating a terpene trilactone from Ginkgo biloba plant material or from an extract of Ginkgo biloba comprising a mixture of terpene trilactones. The process comprises the steps of: (a) subjecting the Ginkgo biloba plant material or the extract to column chromatog. with an appropriate solvent system to produce at least a first fraction containing the terpene trilactone bilobalide, a second fraction eluted after the first fraction containing the terpene trilactones ginkgolide A and ginkgolide B, and a third fraction eluted after the second fraction containing at least a preponderance of the terpene trilactones ginkgolide C and ginkgolide J; and (b) alkylating the terpene trilactone ginkgolide B of the second fraction so as to produce a first mixture including terpene trilactone ginkgolide A and alkylated terpene trilactone ginkgolide B; or alkylating the terpene trilactone ginkgolide C of the third fraction so as to produce a second mixture including terpene trilactone ginkgolide J and alkylated terpene trilactone ginkgolide C, so as to thereby isolate a terpene trilactone. For example, the enriched extract of Ginkgo biloba (4.0 g) in min. amount of Et acetate was loaded on silica gel (100 g) column. The column was slowly eluted with Et acetate/hexanes solvent mixts. The fraction collected at 45% Et acetate/hexanes contained bilobalide (0.4 g). The fractions collected at 50% Et acetate/hexanes contained small amts. of impure bilobalide and ginkgolide A then mixture ginkgolide A/ginkgolide B. The fractions collected at 55% Et acetate/hexanes contained ginkgolide

A/ginkgolide B (1.1 g). The fractions collected at 60% Et acetate/hexanes contained mixture of ginkgolide C/ginkgolide J (0.4 g) with small amts. of ginkgolide A and ginkgolide B. To a ginkgolide mixture (1.08 g, ginkgolide B 25% weight/weight, ginkgolide A 74% weight/weight) was added potassium carbonate 879 mg, DMF 11 mL, benzyl bromide 756 mL. The mixture was stirred and quenched with 1M HCl (18 mL) and solution was extracted with Et acetate and dried with magnesium sulfate. The product mixture was suspended in chloroform (10 mL), filtered to obtain 605 mg of ginkgolide A as white powder. The filtrate was concentrated and purified by gradient column chromatog. (30 - 50 % Et acetate/hexanes) to obtain 326 mg of benzylated ginkgolide B and 134 mg of ginkgolide A. Catalytic hydrogenation of 322 mg of benzylated ginkgolide B yielded 257 mg of ginkgolide B.

IC ICM B01D

CC 63-4 (Pharmaceuticals)

Section cross-reference(s): 30

ST terpene lactone benzylation liq chromatog hydrogenolysis;

ginkgolide bilobalide benzylation liq chromatog hydrogenolysis

IT Terpenes, biological studies

RL: NPO (Natural product occurrence); PUR (Purification or recovery); THU

(Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PREP

(Preparation); USES (Uses)

(lactones; separation of terpene lactones from Ginkgo

biloba using column chromatog.)

IT Benzylation

Ginkgo biloba

Hydrogenolysis

Liquid chromatography

(separation of ginkgolides and bilobalide from Ginkgo

biloba using column chromatog.)

IT 15291-76-6P, Ginkgolide C 15291-77-7P, Ginkgolide B

RL: NPO (Natural product occurrence); PUR (Purification or

recovery); SPN (Synthetic preparation); THU (Therapeutic use)

; BIOL (Biological study); OCCU (Occurrence); PREP (Preparation)

; USES (Uses)

(separation of ginkgolides and bilobalide from Ginkgo

biloba using column chromatog.)

IT 15291-75-5P, Ginkgolide A 33570-04-6P, Bilobalide

107438-79-9P, Ginkgolide J

RL: NPO (Natural product occurrence); PUR (Purification or

recovery); THU (Therapeutic use); BIOL (Biological study);

OCCU (Occurrence); PREP (Preparation); USES (Uses)

(separation of ginkgolides and bilobalide from Ginkgo

biloba using column chromatog.)

IT 534-17-8, Cesium carbonate 584-08-7, Potassium carbonate

RL: NUU (Other use, unclassified); USES (Uses)

(separation of ginkgolides and bilobalide from Ginkgo

biloba using column chromatog.)

IT 100-39-0, Benzyl bromide 106-95-6, Allyl bromide, reactions 2746-25-0,

P-Methoxy-benzylbromide 4392-24-9, Cinnamyl bromide 17690-16-3,

Benzylloxymethyl bromide

RL: RCT (Reactant); RACT (Reactant or reagent)

(separation of ginkgolides and bilobalide from Ginkgo

biloba using column chromatog.)

IT 170288-58-1P 502421-88-7P 852046-13-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT

(Reactant or reagent)

(separation of ginkgolides and bilobalide from Ginkgo

biloba using column chromatog.)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD
(1 CITINGS)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 30 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:886401 CAPLUS Full-text

DOCUMENT NUMBER: 142:62866

TITLE: Isolation of ginkgolides A, B, C, J and

bilobalide from G. biloba extracts

AUTHOR(S): Jaracz, Stanislaw; Malik, Shahid; Nakanishi, Koji

CORPORATE SOURCE: Department of Chemistry, Columbia University, NY, 10027, USA

SOURCE: Phytochemistry (Elsevier) (2004), 65(21), 2897-2902

CODEN: PYTCAS; ISSN: 0031-9422

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 26 Oct 2004

AB Ginkgolides A, B, C and J, together with bilobalide, are unique terpenoid components of the Ginkgo biloba tree. Due to similar chemical properties, their separation is quite tedious. We have developed an efficient and rapid protocol for separation of individual ginkgolides and bilobalide from G. biloba exts. The procedure takes advantage of enhanced susceptibility of ginkgolides B and C to benzylation and the ease of separation of these products from ginkgolides A and J which do not react. The protocol is applicable to the previously reported enriched exts. prepared from G. biloba leaves. A single chromatog. step prior to benzylation provides bilobalide and mixture of ginkgolides A, B, C, and J. After benzylation, the individual ginkgolides are separated by chromatog.

CC 64-2 (Pharmaceutical Analysis)

Section cross-reference(s): 30, 63

ST bilobalide ginkgolide Ginkgo benzylation chromatog hydrogenolysis

IT Ginkgo biloba

Liquid chromatography

(isolation of ginkgolides and bilobalide from Ginkgo biloba exts. by benzylation, chromatog. and hydrogenolysis)

IT 15291-75-5, Ginkgolide A 33570-04-6, Bilobalide 107438-79-9, Ginkgolide J

RL: ANT (Analyte); ANST (Analytical study)

(isolation of ginkgolides and bilobalide from Ginkgo biloba exts. by benzylation, chromatog. and hydrogenolysis)

IT 15291-76-6, Ginkgolide C 15291-77-7, Ginkgolide B

RL: ANT (Analyte); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent)

(isolation of ginkgolides and bilobalide from Ginkgo biloba exts. by benzylation, chromatog. and hydrogenolysis)

IT 100-39-0, Benzyl bromide

RL: RCT (Reactant); RACT (Reactant or reagent)

(isolation of ginkgolides and bilobalide from Ginkgo biloba exts. by benzylation, chromatog. and hydrogenolysis)

IT 170288-58-1P, 10-O-Benzyl-ginkgolide B 502421-88-7P, 10-O-Benzyl-ginkgolide C

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(isolation of ginkgolides and bilobalide from Ginkgo biloba exts. by benzylation,

chromatog. and hydrogenolysis)

OS.CITING REF COUNT: 12 THERE ARE 12 CAPLUS RECORDS THAT CITE THIS RECORD (12 CITINGS)

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 31 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2004:485409 CAPLUS Full-text

DOCUMENT NUMBER: 141:179751

TITLE: A Method for Extraction and Quantification of Ginkgo Terpene Trilactones

AUTHOR(S): Ding, Chen; Chen, Erqin; Zhou, Weijia; Lindsay, Robert C.

CORPORATE SOURCE: Department of Food Science, University of Wisconsin Madison, Madison, WI, 53711, USA

SOURCE: Analytical Chemistry (2004), 76(15), 4332-4336

CODEN: ANCHAM; ISSN: 0003-2700

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 17 Jun 2004

AB A method was developed for the extraction and quantification of pharmacol. active terpene trilactones (ginkgolides, bilobalide) from the tissues of Ginkgo biloba L. and pharmaceutical ginkgo products by RP-HPLC, based on the theory of terpene trilactones ionization. Four ginkgolides (GA, GB, GC, GJ) and bilobalide (BB) from both the ginkgo leaves and com. available ginkgo exts. were quant. extracted by using this method. The recovery rate of the method was 97.5-100% with RSD of 1.2-2.8%. The detection limit was 0.05-0.1 µg, and the linear range was 0.1-12 µg. This detection limit represents a marked improvement over previously reported methods, suggesting the new method is a viable technique for routine anal. of ginkgo terpene trilactones in natural and com. samples. The method reported by van Beek et al. in 1991 was used as a reference method to monitor the accuracy of extraction and anal. in this study. SSI-MS technique was used to identify isolated target components. Carbohydrase treatment and solubility of terpene trilactones in various solvents were also discussed.

CC 64-2 (Pharmaceutical Analysis)

IT Mass spectrometry
(liquid chromatog. combined with; method for extraction and quantification of Ginkgo terpene trilactones)

IT Liquid chromatography
(mass spectrometry combined with; method for extraction and quantification of Ginkgo terpene trilactones)

IT Extraction
Ginkgo biloba
Leaf
Reversed phase HPLC
pH

(method for extraction and quantification of Ginkgo terpene trilactones)

IT 15291-75-5P, Ginkgolide A 15291-76-6P, Ginkgolide C
15291-77-7P, Ginkgolide B 33570-04-6P, Bilobalide
107436-79-9P, Ginkgolide J
RL: ANT (Analyte); PUR (Purification or recovery); ANST
(Analytical study); PREP (Preparation)

(method for extraction and quantification of Ginkgo terpene trilactones)

OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 32 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2003:598252 CAPLUS Full-text
 DOCUMENT NUMBER: 140:70227
 TITLE: Liquid chromatography/atmospheric pressure
 chemical ionization ion trap mass spectrometry of
 terpene lactones in plasma of animals
 AUTHOR(S): Mauri, Pierluigi; Minoggio, Markus; Iemoli, Loredana;
 Rossoni, Giuseppe; Morazzoni, Paolo; Bombardelli,
 Ezio; Pietta, Piergiorgio
 CORPORATE SOURCE: Istituto Tecnologie Biomediche-CNR, Segrate, Milan,
 20090, Italy
 SOURCE: Journal of Pharmaceutical and Biomedical Analysis
 (2003), 32(4-5), 633-639
 CODEN: JPBADA; ISSN: 0731-7085
 PUBLISHER: Elsevier Science B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 ED Entered STN: 05 Aug 2003
 AB Liquid chromatog./atmospheric pressure chemical ionization ion trap mass
 spectrometry (LC/APCI-ITMS) was applied to evaluate the bioavailability of two
 different forms (free and complexed with soy phospholipids) of pure bilobalide
 and ginkgolide B in rats after acute administration. The same technique was
 used to measure the levels of ginkgolide A, B and bilobalide in plasma of
 guinea pigs fed Ginkgo biloba extract enriched in terpene lactones after
 chronic administration. The ratio RP/RA increased two to four times after the
 administration in the phytosomal form, where RP and RA represent the
 percentage ratio between the concentration of each terpene lactone in plasma
 and in the administered form, resp.
 CC 1-2 (Pharmacology)
 Section cross-reference(s): 11, 63
 IT Bronchodilators
 Drug bioavailability
 Ion trap mass spectrometry
 Liquid chromatography
 (LC APCI ITMS of Ginkgo terpene lactones in plasma)
 IT Ginkgo biloba
 (ginkgoterpene enriched extract; LC APCI ITMS of Ginkgo terpene lactones
 in plasma)
 IT 15291-75-SP, Ginkgolide A 15291-77-7DP, Ginkgolide
 B, complexed with soy phospholipids 15291-77-7P, Ginkgolide B
 33570-04-6DP, Bilobalide, complexed with soy phospholipids
 33570-04-6P, Bilobalide
 RL: NPO (Natural product occurrence); PAC (Pharmacological activity); PKT
 (Pharmacokinetics); PUR (Purification or recovery); THU
 (Therapeutic use); BIOL (Biological study); OCCU (Occurrence);
 PREP (Preparation); USES (Uses)
 (LC APCI ITMS of Ginkgo terpene lactones in plasma)
 OS.CITING REF COUNT: 15 THERE ARE 15 CAPLUS RECORDS THAT CITE THIS
 RECORD (15 CITINGS)
 REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 33 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2003:118417 CAPLUS Full-text
 DOCUMENT NUMBER: 138:150364
 TITLE: Method for isolating terpene trilactones (ginkgolides,
 bilobalide) from leaves and pharmaceutical powders of
 Ginkgo biloba
 INVENTOR(S): Lichtblau, Dirk; Berova, Nina; Berger, John;
 Nakanishi, Koji

Nizal Chandrakumar 10/579,162

PATENT ASSIGNEE(S): The Trustees of Columbia University in the City of New York, USA
 SOURCE: U.S. Pat. Appl. Publ., 17 pp., Cont.-in-part of U.S. Ser. No. 903049, abandoned.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 4
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20030031736	A1	20030213	US 2002-194089	20020711
US 6590109	B2	20030708		
AT 343393	T	20061115	AT 2002-748132	20020711
US 20040077883	A1	20040422	US 2003-615346	20030707
US 6844451	B2	20050118		
US 20050136136	A1	20050623	US 2005-36409	20050114
PRIORITY APPLN. INFO.:			US 2001-903049	B2 20010711
			US 2002-194089	A1 20020711
			US 2003-615346	A1 20030707

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

ED Entered SIN: 14 Feb 2003

AB A method of isolating terpene trilactones from Ginkgo biloba plant material or extract comprising the steps of suspending the plant material or extract in either water or an aqueous solution of an oxidation reagent; extracting the terpene trilactones using an acceptable extraction agent; separating the organic layer from the aqueous layer; washing the organic layer with an acceptable aqueous salt or hydroxide solution, which may be an alkaline solution; and drying the organic layer to form a dried extract containing terpene trilactones. Further purification by treatment with or filtration over activated charcoal, by treatment with or filtration over alumina and by recrystall. with an acceptable solvent or solvent mixture leads to exts. with a content of terpene trilactones higher than 50%. Unwanted levels of ginkgolide acids are reduced to acceptable levels by reversed phase chromatog.

IC ICM C07D311-78
 ICS C07D498-14; A61K035-78

INCL 424752000; 549280000

CC 11-1 (Plant Biochemistry)
 Section cross-reference(s): 63

ST terpene trilactone extn Ginkgo biloba; ginkgolide extn Ginkgo; bilobalide extn Ginkgo

IT Ginkgo biloba
 (extraction of terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba)

IT Oxidizing agents
 (for extraction of terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba)

IT Reversed phase chromatography
 (for isolating terpene trilactones (ginkgolides, bilobalide) from Ginkgo biloba)

IT Terpenes, biological studies
 RL: NPO (Natural product occurrence); PUR (Purification or recovery); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation)
 (lactones; extraction of terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba)

IT Catalysts
 (metal or non metal; for destroying excess of oxidation reagent in organic

layer during extraction of terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba)

IT Extraction
(of terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba)

IT 15291-75-5F, Ginkgolide A 15291-76-6P, Ginkgolide C
15291-77-7F, Ginkgolide B 33570-64-6P, Bilobalide
107438-79-9P, Ginkgolide J
RL: NPO (Natural product occurrence); PUR (Purification or recovery); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation)
(extraction of terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba)

IT 22910-60-7 111047-30-4 496811-17-7
RL: NPO (Natural product occurrence); REM (Removal or disposal); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(extraction of terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba)

IT 64-19-7, Acetic acid, reactions 144-55-8, Sodium bicarbonate, reactions 497-19-8, Sodium carbonate, reactions 584-08-7, Potassium carbonate 1310-58-3, Potassium hydroxide, reactions 1310-73-2, Sodium hydroxide, reactions 7647-01-0, Hydrochloric acid, reactions 7664-38-2, Phosphoric acid, reactions 7664-93-9, Sulfuric acid, reactions 7697-37-2, Nitric acid, reactions 7722-84-1, Hydrogen peroxide, reactions 7757-83-7, Sodium sulfite 7772-98-7, Sodium thiosulfate 12125-02-9, Ammonium chloride, reactions 16721-80-5, Sodium hydrosulfide
RL: RGT (Reagent); RACT (Reactant or reagent)
(extraction of terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba)

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L41 ANSWER 34 OF 34 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1999:355742 CAPLUS Full-text

DOCUMENT NUMBER: 131:9615

TITLE: Methods for preparation of bioginkgo

INVENTOR(S): Zhang, De Cheng; Yu, Zhengshun; Cooper, Raymond; Chang, Michael

PATENT ASSIGNEE(S): Pharmanex, Inc., USA

SOURCE: PCT Int. Appl., 29 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 9926643	A1	19990603	WO 1998-US25165	19981123
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,				

Nizal Chandrakumar 10/579,162

	CM, GA, GN, GW, ML, MR, NE, SN, TD, TG	
AU 9919022	A 19990615	AU 1999-19022 19981123
EP 1033994	A1 20000913	EP 1998-963768 19981123
	R: AT, BE, DE, DK, ES, FR, GB, IT, NL, SE, PT, IE, FI	
JP 2003514761	T 20030422	JP 2000-521845 19981123
JP 4249388	B2 20090402	
PRIORITY APPLN. INFO.:	US 1997-66867P P 19971125	WO 1998-US25165 W 19981123

ED Entered STN: 10 Jun 1999

AB The invention relates to a novel process for producing novel exts. of Ginkgo biloba leaves. The invention further relates to a process which produces novel exts. of Ginkgo biloba with an increased amount of one of the major lactones and having an improved biol. activity. Further, the disclosed process allows for a controlled method to produce a desired ratio of flavone glycosides to lactones in the end product. The invention also discloses new exts. from Ginkgo biloba, particularly for oral application. The leaves of Ginkgo biloba are collected during the months of August through Oct. from 3-5 yr of tree age in the Shandong province of China.

IC ICM A61K035-78

ICS A61K031-70

CC 63-4 (Pharmaceuticals)

ST ginkgo biloba ext purifn dietary supplement

IT Ginkgo biloba

Nutrients

(extraction and purification of Ginkgo biloba leaves for use as dietary supplements)

IT Lactones

RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); USES (Uses)

(extraction and purification of Ginkgo biloba leaves for use as dietary supplements)

IT Glycosides

RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); USES (Uses)

(flavonoid, oxo; extraction and purification of Ginkgo biloba leaves for use as dietary supplements)

IT Polyamides, analysis

RL: ARU (Analytical role, unclassified); ANST (Analytical study) (stationary phase for column chromatog.; extraction and purification of Ginkgo biloba leaves for use as dietary supplements)

IT 15291-75-5P, Ginkgolide A 15291-76-6F, Ginkgolide C

15291-77-7P, Ginkgolide B

RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); USES (Uses)

(extraction and purification of Ginkgo biloba leaves for use as dietary supplements)

IT 22910-60-7, Ginkgolic acid

RL: REM (Removal or disposal); PROC (Process) (extraction and purification of Ginkgo biloba leaves for use as dietary supplements)

IT 64-17-5, Ethanol, uses 141-78-6, Acetic acid ethyl ester, uses

RL: NUU (Other use, unclassified); USES (Uses) (solvent; extraction and purification of Ginkgo biloba leaves for use as dietary supplements)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

Nizal Chandrakumar 10/579,162

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L53 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2009:1457148 CAPLUS Full-text
 TITLE: Method for isolating terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba
 INVENTOR(S): Lichtblau, Dirk; Berova, Nina; Berger, John; Nakanishi, Koji
 PATENT ASSIGNEE(S): Columbia University, USA
 SOURCE: U.S. Pat. Appl. Publ., Cont. of U.S. Ser. No. 194,089.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 4
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20040077883	A1	20040422	US 2003-615346	20030707
US 6844451	B2	20050118		
US 20030031736	A1	20030213	US 2002-194089	20020711
US 6590109	B2	20030708		
US 20050136136	A1	20050623	US 2005-36409	20050114
PRIORITY APPLN. INFO.:			US 2001-903049	B2 20010711
			US 2002-194089	A1 20020711
			US 2003-615346	A1 20030707

ED Entered STN: 24 Nov 2009

AB A method of isolating terpene trilactones (ginkgolide A (GA), ginkgolide B (GB), ginkgolide C (GC), ginkgolide J (GJ) and bilobalide (BB)) from leaves and pharmaceutical powders of Ginkgo biloba (G. biloba) comprises the steps of suspending leaves or pharmaceutical powders of Ginkgo biloba in either water or an aqueous solution of an oxidation reagent hydrogen peroxide and an acid selected from acetic acid, hydrochloric acid, nitric acid, phosphoric acid and sulfuric acid; extracting the terpene trilactones using an acceptable extraction agent selected from lower acetates such as Et acetate, lower ketones, lower ether such as diethylether, lower alcs. and benzenes; separating the organic layer from the aqueous layer; washing the organic layer with an acceptable aqueous salt such as sodium bicarbonate, sodium sulfite, sodium chloride, sodium thiosulfate or hydroxide solution, which may be an alkaline solution, or with water; and drying the organic layer to form a dried extract containing terpene trilactones. Further purification by treatment with or filtration over activated charcoal, by treatment with or filtration over alumina and by recrystn. with an acceptable solvent or solvent mixture leads to exts. with a content of terpene trilactones higher than 50%. Unwanted levels of ginkgolic acids are reduced to acceptable levels by reversed phase chromatog.

IC ICM C07D493-14

INCL 549275000; 549276000

ST g biloba leaf ext; ginkgo biloba leaf ext; terpene trilactones; ttl; ginkgolides a; ga; ginkgolides b; gb; ginkgolides c; gc; ginkgolides j; gj; bilobalide; bb; recrystn; chromatog; reversed phase chromatog; ethyl acetate extn; diethylether extn; water extn

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD

L53 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2010 ACS on STN
 ACCESSION NUMBER: 2009:1358096 CAPLUS Full-text
 TITLE: Method for isolating terpene
 trilactones (ginkgolides,
 bilobalide) from leaves and pharmaceutical powders of
 ginkgo biloba/Method for extracting
 ginkgolides and bilobalide from Ginkgo biloba
 leaves
 INVENTOR(S): Lichtblau, Dirk; Berova, Nina; Berger, John;
 Nakanishi, Koji
 PATENT ASSIGNEE(S): The Trustees of Columbia University, USA
 SOURCE: U.S. Pat. Appl. Publ., Cont. U.S. Ser. No. 615,346.
 Abandoned
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 4
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050136136	A1	20050623	US 2005-36409	20050114
US 20030031736	A1	20030213	US 2002-194089	20020711
US 6590109	B2	20030708		
US 20040077883	A1	20040422	US 2003-615346	20030707
US 6844451	B2	20050118		
PRIORITY APPLN. INFO.:			US 2001-903049	B2 20010711
			US 2002-194089	A1 20020711
			US 2003-615346	A1 20030707

ED Entered STN: 05 Nov 2009

AB A method for extracting terpene trilactones (ginkgolides A,B,C,J and bilobalide) from Ginkgo biloba plant material (e.g. leaf) or extract comprises the steps of: suspending the plant material or extract in either water or an aqueous solution of an oxidation reagent (such as 3-chloroperbenzoic acid (MCPBA), MnO₂, or hydrogen peroxide), wherein the aqueous solution may further comprise acid selected from acetic acid, hydrochloric acid, nitric acid, phosphoric acid and sulfuric acid; extracting the terpene trilactones using an acceptable extraction agent selected from lower acetates (such as Et acetate), lower ketones, lower ether, lower alcs. and benzenes; separating the organic layer from the aqueous layer; washing the organic layer at least once with an acceptable aqueous salt or hydroxide solution selected from ammonium chloride, sodium carbonate, sodium bicarbonate, potassium carbonate, sodium hydroxide, potassium hydroxide, sodium thiosulfate, sodium sulfite and sodium hydrosulfide, which may be alkaline solution; contacting the organic layer with a metal or nonmetal catalyst to destroy excess oxidation reagent in the organic layer; and drying the organic layer to form a dried extract containing terpene trilactones. Further purification by treatment with or filtration over activated charcoal, by treatment with or filtration over alumina and by recrystn. with an acceptable solvent or solvent mixture leads to exts. with a content of terpene trilactones higher than 50%. Unwanted levels of ginkgolides are reduced to acceptable levels by reversed phase chromatog. The method provides higher purity and higher yields; decreases time for the extraction process thus helping to save energy; maintains the natural distribution of the terpene trilactone levels and gives high recovery of trilactones.

IC ICM C07D493-14
 ICS A61K035-78

INCL 424752000; 549275000; 549297000

ST ginkgo biloba leaf; ginkgo biloba leaf ext; terpene
trilactone; ginkgolide; ginkgolide a;
ginkgolide b; ginkgolide c; ginkgolide j;
micobalide; ethyl acetate extn; recrystn; reversed phase
chromatog; chromatog

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USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Aug 2009

HCAplus now includes complete International Patent Classification (IPC) reclassification data for the third quarter of 2009.

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This file contains CAS Registry Numbers for easy and accurate substance identification.

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L2	14	SEA FILE=REGISTRY SPE=ON	ABB=ON	PLU=ON	(100-39-0/BI OR 106-95-6/BI OR 107438-79-9/BI OR 15291-75-5/BI OR 15291-76-6/BI OR 15291-77-7/BI OR 170288-58-1/BI OR 17690-16-3/BI OR 2746-25-0/BI OR 33570-04-6/BI OR 4392-24-9/BI OR 502421-88-7/BI OR 534-17-8/BI OR 584-08-7/BI)
L3	1	SEA FILE=REGISTRY SPE=ON	ABB=ON	PLU=ON	852046-13-0/BI
L4	15	SEA FILE=REGISTRY SPE=ON	ABB=ON	PLU=ON	L2 OR L3
L6	4569	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	GINKGO BILOBA+PFT,NT/CT
L7	2201	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	TERPENES+PFT,NT/CT(L)? LACTON?
L8	184	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	L7 AND L6
L9	107549	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	SEPARATION+PFT,NT/CT
L10	83	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	L9 AND L8
L12	49	SEA FILE=HCAPLUS SPE=ON	ABB=ON	PLU=ON	L10 AND ?CHROMATOG?
L13	1	SEA FILE=REGISTRY SPE=ON	ABB=ON	PLU=ON	"GINKGOLIDE A"/CN
L14	1	SEA FILE=REGISTRY SPE=ON	ABB=ON	PLU=ON	"GINKGOLIDE B"/CN

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L15 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "GINKGOLIDE C"/CN
 L16 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "GINKGOLIDE J"/CN
 L17 4 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON (L13 OR L14 OR L15
 OR L16)
 L18 8 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON (107438-79-9/CRN OR
 15291-75-5/CRN OR 15291-76-6/CRN OR 15291-77-7/CRN)
 L19 12 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L17 OR L18
 L20 97 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L19 (L) PUR/RL
 L22 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L4 AND K/ELS
 L23 120 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON 584-08-7/CRN OR L22
 L24 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON DIMETHYLFORMAMIDE/CN
 L26 4742 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L24 OR 68-12-2/CRN
 L28 1 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON "BENZYL BROMIDE"/CN
 L29 118 SEA FILE=REGISTRY SPE=ON ABB=ON PLU=ON L28 OR 100-39-0/CRN
 L30 117 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L20 OR L19(L){?ISOLAT?
 OR ?PURI?}
 L31 4 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L30 AND (L23 OR L26
 OR L29)
 L33 40 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L30 AND ?CHROMATOG?
 L34 4 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L31 AND L33
 L35 51 SEA FILE=HCAPLUS SPE=ON ABB=ON PLU=ON L34 OR L12

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L35 ANSWER 1 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2009:459053 HCAPLUS Full-text

DOCUMENT NUMBER: 151:273173

TITLE: Determination of the content of terpene lactone in
 Yinqu Capsule

AUTHOR(S): Shao, Wenhao; Zhang, Xiantao; Gu, Yan; Zhang, Yazhao

CORPORATE SOURCE: Nanjing Hailing Traditional Chinese Medicine
 Pharmaceutical Technology Research Co., Ltd., Nanjing,
 210049, Peop. Rep. China

SOURCE: Zhongchengyao (2009), 31(2), S4-S5

CODEN: ZHONBS; ISSN: 1001-1528

PUBLISHER: Guojia Shipin Yaopin Jiandu Guanliju, Xinxin Zhongxin
 Zhongchengyao Xinxizhan

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The content of terpene lactone in Yinqu Capsule was determined by HPLC on
 Alltima C18 (4.6 mm x 250 mm, 5 µm). The mobile phase was methanol-water
 (30:70). Evaporative light-scattering detector (ELSD) was used for
 determination of terpene lactone. The temperature of drift tube was 110°, and
 the flow rate of carrier gas was 2.8 L/min. Bilobalide, ginkgolide A,
 ginkgolide B and ginkgolide C were used as reference substances. The
 regression equations for bilobalide, ginkgolide A, ginkgolide B and ginkgolide
 C were $Y = 1.6137X + 4.5278$ ($r = 0.9996$), $Y = 1.587X + 4.4118$, $Y = 1.6341X$
 $+ 4.3623$ ($r = 0.9999$), and $Y = 1.576X + 4.5002$ ($r = 0.99965$), and the linear
 ranges were 1.160-23.20, 1.50-30.00, 0.77-15.40, and 0.73-14.6 µg. This
 method is simple and the result is accurate.

CC 64-1 (Pharmaceutical Analysis)

IT Ginkgo biloba

HPLC

Light scattering

Monascus

Pharmaceutical capsules

Quality control

(determination of content of terpene lactone in Yinqu Capsule by high performance liquid chromatog.)

IT Lactones

Terpenes

RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)

(determination of content of terpene lactone in Yinqu Capsule by high performance liquid chromatog.)

L35 ANSWER 2 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2009:375002 HCAPLUS Full-text

DOCUMENT NUMBER: 150:431502

TITLE: Method for separating and purifying ginkgolides and

bilobalide monomer from Chinese medicine Ginkgo

INVENTOR(S): Zhang, Li; Yang, Bing; Dong, Weizhen; Xia, Ke

PATENT ASSIGNEE(S): Chendu Push Biotechnology Co., Ltd., Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 10pp.

CODEN: CNXXEV

DOCUMENT TYPE:

Patent

LANGUAGE:

Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 101392000	A	20090325	CN 2008-10046162	20080925
PRIORITY APPLN. INFO.:			CN 2008-10046162	20080925
AB	The title method comprises of: (1) weighing ginkgo leaf, adding 30-50 volume% ethanol solution, stirring for dissoln. at 40-60 °C, standing for 2 h, pouring supernatant out, adding petroleum ether (boiling range of 60-90 °C), extracting for three times, recovering petroleum ether, and discarding remnant, removing ginkgoic acid, (2) vacuum-concentrating water phase obtained in step 1 at 60 °C to recover organic reagent, adding Et acetate to water solution, extracting for three times, combining Et acetate phases, back-extracting with water for two times, and vacuum-concentrating at 60 °C to obtain total terpene lactones, (3) dissolving in 80 volume% methanol, and performing microfiltration, (4) high-efficiency separating methanol solution of total terpene lactones via an HPLC column to resp. collect solns. of ginkgolides A, B, C and J and bilobalide monomer, and (5) vacuum-concentrating at 50-60 °C to recover methanol, adsorbing with AB-8 macroporous resin, desorbing with 95% ethanol, vacuum-concentrating, and vacuum-drying with coexistence of phosphorus pentoxide to obtain ginkgolides A, B, C and J and bilobalide monomer with purity more than 98%. The method has the advantages of high production amount, good product quality, high yield and low cost, and is suitable for industrialized production			
CC	63-4 (Pharmaceuticals)			
IT	Preparative liquid chromatography (high-performance reversed-phase; method for separating and purifying ginkgolides and bilobalide monomer from Chinese medicine Ginkgo)			
IT	Terpenes, biological studies RL: ANT (Analyte); PUR (Purification or recovery); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses) (lactones; method for separating and purifying ginkgolides and bilobalide monomer from Chinese medicine Ginkgo)			
IT	Ginkgo biloba Natural products, pharmaceutical (method for separating and purifying ginkgolides and bilobalide monomer from			

Chinese medicine Ginkgo)
IT Reversed phase HPLC
(preparative; method for separating and purifying ginkgolides and
bilobalide
monomer from Chinese medicine Ginkgo)

L35 ANSWER 3 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2009:231907 HCAPLUS Full-text

DOCUMENT NUMBER: 150:406783

TITLE: Chemical analysis and quality control of Ginkgo biloba
leaves, extracts, and phytopharmaceuticals
AUTHOR(S): van Beek, Teris A.; Montoro, Paola
CORPORATE SOURCE: Laboratory of Organic Chemistry, Natural Products
Chemistry Group, Wageningen University, Wageningen,
6703 HB, Neth.

SOURCE: Journal of Chromatography, A (2009), 1216(11),
2002-2032

CODEN: JCRAEY; ISSN: 0021-9673

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review. The chemical anal. and quality control of Ginkgo leaves, exts.,
phytopharmaceuticals and some herbal supplements is comprehensively reviewed.
The review is an update of a similar, earlier review in this journal. Since
2001 over 3000 papers on Ginkgo biloba have appeared, and about 400 of them
pertain to chemical anal. in a broad sense and are cited herein. The more
important ones are discussed and, where relevant, compared with the best
methods published prior to 2002. In the same period over 2500 patents were
field on Ginkgo and the very few related to anal. are mentioned as well.
Important constituents include terpene trilactones, i.e. ginkgolide A, B, C, J
and bilobalide, flavonol glycosides, biflavones, proanthocyanidins,
alkylphenols, simple phenolic acids, 6-hydroxykynurenic acid, 4-O-
methylpyridoxine and polyphenols. In the most common so-called "standardized"
Ginkgo exts. and phytopharmaceuticals several of these classes are no longer
present. About 130 new papers deal with the anal. of the terpene trilactones.
They are mostly extracted with MeOH or water or mixts. thereof. Supercrit.
fluid extraction and pressurized water extraction are also possible. Sample
clean-up is mostly by liquid-liquid extraction with Et acetate although no
sample clean-up at all in combination with LC/MS/MS is gaining in importance.
Separation and detection can be routinely carried out by RP-HPLC with ELSD, RI
or MS, or by GC/FID or GC/MS after silylation. Hydrolysis followed by LC/MS
allows the simultaneous anal. of terpene trilactones and flavonol aglycons.
No quant. procedure for all major flavonol glycosides has yet been published
because they are not com. available. The quantitation of a few available
glycosides was carried out but does not serve a real purpose. After acidic
hydrolysis to the aglycons quercetin, kaempferol, and isorhamnetin and
separation by HPLC, quantitation is straightforward and yields by recalcn. an
estimation of the original total flavonol glycoside content. A profile of the
genuine flavonol glycosides can detect poor storage or adulteration. Although
the toxicity of Ginkgo alkylphenols upon oral administration has never been
undoubtedly proven, most suppliers limit their content in exts. to 5 ppm and
dozens of papers on their anal. were published. One procedure in which a
methanolic extract is directly injected on a C8 HPLC column appears superior
in terms of sensitivity (<5 ppm), separation, simplicity, and validation and
will be incorporated in the European Pharmacopoeia. Alternatively GC/MS and
ELISA methods can be used. A sharp contrast to the plethora of papers on
terpene trilactones, flavonol glycosides, and ginkgolic acids forms the low
number of papers on biflavones, proanthocyanidins, simple phenolics, simple
acids, and other constituents that make up the remaining 70% of Ginkgo
standardized exts. More research in this direction is clearly needed. For

the anal. of Ginkgo proanthocyanidins (7%) for instance, no reliable assays are yet existing. Finally the growing literature on pharmacokinetic and fingerprinting studies of Ginkgo is briefly summarized.

CC 64-0 (Pharmaceutical Analysis)

Section cross-reference(s): 63

IT Gas chromatography

Natural products, pharmaceutical

Quality control

Reversed phase HPLC

(chemical anal. and quality control of Ginkgo biloba leaves, exts., and phytopharmaceuticals)

IT Liquid chromatography

(combined with tandem mass spectrometry; chemical anal. and quality control of Ginkgo biloba leaves, exts., and phytopharmaceuticals)

IT Terpenes, analysis

RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)

(lactones; chemical anal. and quality control of Ginkgo biloba leaves, exts., and phytopharmaceuticals)

IT Ginkgo biloba

(leaf; chemical anal. and quality control of Ginkgo biloba leaves, exts., and phytopharmaceuticals)

IT Tandem mass spectrometry

(liquid chromatog., combined with; chemical anal. and quality control of Ginkgo biloba leaves, exts., and phytopharmaceuticals)

IT Extraction

(supercrit.; chemical anal. and quality control of Ginkgo biloba leaves, exts., and phytopharmaceuticals)

OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

REFERENCE COUNT: 589 THERE ARE 589 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 4 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2009:176910 HCAPLUS Full-text

TITLE: GC determination of terpene lactones in ginkgo leaf extracts with capillary chromatographic column

AUTHOR(S): Liu, Hong-mei; Zhou, Qing-xia; Yang, Wen-ling

CORPORATE SOURCE: College of Chemistry and Pharmaceutical Engineering, Hebei University of Science and Technology, Shijiazhuang, 050018, Peop. Rep. China

SOURCE: Lihua Jianyan, Huaxue Fence (2008), 44(10), 982-985
CODEN: LJHFE2; ISSN: 1001-4020

PUBLISHER: Lihua Jianyan Huaxue Fence Bianjibu

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Chromatog. conditions for separation of terpenes (named in abbreviation as GA, GB, GC, GJ and BB) from exts. of ginkgo leaves with capillary column were studied, and the terpenes were satisfactorily separated. Squalane was used as internal standard in the determination. The relative mass correction factors were calculated theor. and also determined exptl. Tests for recovery of BB, GA, GB and GC were made by addition of stds. to a sample of known terpene contents and analyzed by the proposed method, and values of recovery obtained were 95.2%, 95.5%, 94.6% and 96.1% resp.

CC 64 (Pharmaceutical Analysis)

ST terpene lactone ginkgo leaf ext capillary gas chromatog

IT INDEXING IN PROGRESS

IT Capillary gas chromatography
Ginkgo biloba

Leaf

(GC determination of terpene lactones in ginkgo leaf exts. with capillary chromatog. column)

IT 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7
 , Ginkgolide B 33570-04-6, Bilobalide 107438-79-9, Ginkgolide J

RL: ANT (Analyte); ANST (Analytical study)

(GC determination of terpene lactones in ginkgo leaf exts. with capillary chromatog. column)

IT 67-56-1, Methanol 67-64-1, Acetone 75-77-4, Trimethylchlorosilane
 111-01-3, Squalane 141-78-6, Ethyl acetate 1333-74-0, Hydrogen
 7727-37-9, Nitrogen 25561-30-2, Bis(trimethylsilyl)trifluoroacetamide

RL: ARU (Analytical role, unclassified); ANST (Analytical study)

(GC determination of terpene lactones in ginkgo leaf exts. with capillary chromatog. column)

L35 ANSWER 5 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2009:97523 HCAPLUS Full-text

DOCUMENT NUMBER: 151:322531

TITLE: Determination of total flavonol glycosides and terpene
 lactones in Ginkgo biloba extract sustained release
 microspheres by HPLC

AUTHOR(S): Su, Mingwu; Yang, Xin; Zhao, Jun

CORPORATE SOURCE: Hubei College of TCM, Wuhan, 430065, Peop. Rep. China

SOURCE: Zhongguo Yaoshi (Wuhan, China) (2008), 11(12),
 1460-1462

CODEN: ZYWCAH; ISSN: 1008-049X

PUBLISHER: Yaowu Liuxingbingxue Zazhishe

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The objective of this paper is to determine the total flavonol glycosides and
 terpene lactones in the Ginkgo biloba extract sustained release microspheres.
 The HPLC method was adopted and the Agilent C18 column (250 mm x 4.6 mm, 5
 µm) was used with methanol-0.4% phosphate (52:48) and methanol-waters (35:65)
 as a mobile phase resp., the flow rate was 1.0 mL/min-1. The results show
 that the ginkgetins and the ginkgo terpene lactones could be completely
 separated from each other, and had good linear relationship. It was concluded
 that the method is accurate, reliable, sensitive and reproducible, which can
 be used for quality control in the Ginkgo biloba extract sustained release
 microspheres sustained release microspheres.

CC 64-1 (Pharmaceutical Analysis)

IT Pharmaceutical microspheres

(controlled-release; determination of total flavonol glycosides and terpene
 lactones in Ginkgo biloba extract sustained release microspheres by high
 performance liquid chromatog.)

IT Ginkgo biloba

Reversed phase HPLC

(determination of total flavonol glycosides and terpene lactones in Ginkgo
 biloba extract sustained release microspheres by high performance liquid
 chromatog.)

IT Glycosides

RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical
 study); BIOL (Biological study)

(flavonoid; determination of total flavonol glycosides and terpene lactones

in

Ginkgo biloba extract sustained release microspheres by high performance
 liquid chromatog.)

IT Terpenes

RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical
 study); BIOL (Biological study)

(lactones; determination of total flavonol glycosides and terpene

lactones in Ginkgo biloba extract sustained release microspheres
by high performance liquid chromatog.)

IT Controlled-release drug delivery systems
(microspheres; determination of total flavonol glycosides and terpene
lactones
in Ginkgo biloba extract sustained release microspheres by high
performance liquid chromatog.)

IT 117-39-5, Quercetin 480-19-3, Isorhamnetin 481-46-9, Ginkgetin
520-18-3 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C
15291-77-7, Ginkgolide B 33570-04-6, Bilobalide
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical
study); BIOL (Biological study)
(determination of total flavonol glycosides and terpene lactones in
Ginkgo biloba extract sustained release microspheres by high performance
liquid chromatog.)

L35 ANSWER 6 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:1165281 HCAPLUS Full-text

DOCUMENT NUMBER: 147:413463

TITLE: Analysis of flavonol aglycones and terpenelactones in
Ginkgo biloba extract: a comparison of
high-performance thin-layer chromatography and
column high-performance liquid chromatography

AUTHOR(S): Gray, Dean E.; Messer, Dale; Porter, Andrew; Hefner,
Brian; Logan, Dama; Harris, Roger K.; Clark, Alice P.;
Algaier, Joseph A.; Overstreet, J. Diane; Smith,
Cynthia S.

CORPORATE SOURCE: Midwest Research Institute, Kansas City, MO, 64110,
USA

SOURCE: Journal of AOAC International (2007), 90(5), 1203-1209
CODEN: JAINEE; ISSN: 1060-3271

PUBLISHER: AOAC International

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Advancements in automated high-performance thin-layer chromatog. (HPTLC) have
made it feasible to assess its use for the quant. anal. of marker compds. in
botanical preps. We report here the findings of method comparisons for the
terpenelactones and flavonol aglycons by column high-performance liquid
chromatog. (HPLC) with evaporative light scattering and UV detection, and
HPTLC with a scanning densitometer. For the HPTLC assay of terpenelactones,
total bilobalide, ginkgolide A, and ginkgolide B consistently achieved <70% of
the total determined using HPLC, regardless of variations to postchromatog.
derivatization time and temperature Accuracy testing showed the possibility of
a matrix interference. In contrast, a good relationship (95%) was determined
between HPTLC and HPLC for determination of total flavonol glycosides
(calculated from combined quercetin, kaempferol, and isorhamnetin) from an
acid-hydrolyzed Ginkgo biloba L. (GBE) sample. The HPTLC flavonol aglycon
method also performed well in terms of accuracy (overall average of 96%
recovery for the 3 aglycons) and consecutive plate repeatability (overall
percent relative standard deviation of 4.4). It is demonstrated that HPTLC
can be a time-saving complement to HPLC for routine anal. of the flavonol
glycosides in GBE.

CC 64-2 (Pharmaceutical Analysis)

Section cross-reference(s): 63

IT HPLC

(anal. of flavonol aglycons and terpenelactones in Ginkgo biloba extract)

IT Ginkgo biloba

(extract; anal. of flavonol aglycons and terpenelactones in Ginkgo biloba
extract)

IT TLC (thin layer chromatography)

(high-performance; anal. of flavonol aglycons and terpenelactones in Ginkgo biloba extract)

IT Terpenes, analysis
 RL: ANT (Analyte); ANST (Analytical study)
 (lactones; anal. of flavonol aglycons and terpenelactones in Ginkgo biloba extract)

IT 117-39-5, Quercetin 480-19-3, Isorhamnetin 520-18-3, Kaempferol 15291-75-5, Ginkgolide A 15291-77-7, Ginkgolide B 33570-04-6, Bilobalide
 RL: ANT (Analyte); ANST (Analytical study)
 (anal. of flavonol aglycons and terpenelactones in Ginkgo biloba extract)

OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 7 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:942838 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 147:330668

TITLE: Characterization of a suite of ginkgo-containing standard reference materials

AUTHOR(S): Rimmer, Catherine A.; Howerton, Samuel B.; Sharpless, Katherine E.; Sander, Lane C.; Long, Stephen E.; Murphy, Karen E.; Porter, Barbara J.; Putzbach, Karsten; Rearick, Michael S.; Wise, Stephen A.; Wood, Laura J.; Zeisler, Rolf; Hancock, Diane K.; Yen, James H.; Betz, Joseph M.; NguyenPho, Agnes; Yang, Lu; Sriver, Christine; Willie, Scott; Sturgeon, Ralph; Schaneberg, Brian; Nelson, Christina; Skamarack, Jules; Pan, Meide; Levanseler, Kerri; Gray, Dean; Waysek, Edward H.; Blatter, Anne; Reich, Eike
 CORPORATE SOURCE: National Institute of Standards and Technology, Gaithersburg, MD, 20899-8392, USA

SOURCE: Analytical and Bioanalytical Chemistry (2007), 389(1), 179-196

CODEN: ABCNBP; ISSN: 1618-2642

PUBLISHER: Springer

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A suite of three ginkgo-containing dietary supplement Standard Reference Materials (SRMs) has been issued by the National Institute of Stds. and Technol. (NIST) with certified values for flavonoid aglycons, ginkgolides, bilobalide, and selected toxic trace elements. The materials represent a range of matrixes (i.e., plant, extract, and finished product) that provide different anal. challenges. The constituents have been determined by at least two independent anal. methods with measurements performed by NIST and at least one collaborating laboratory. The methods utilized different extns., chromatog. sepsns., modes of detection, and approaches to quantitation. The SRMs are primarily intended for method validation and for use as control materials to support the anal. of dietary supplements and related botanical materials.

CC 64-2 (Pharmaceutical Analysis)

IT Dietary supplements

Ginkgo biloba

(characterization of suite of ginkgo-containing standard reference materials)

IT Terpenes, analysis

RL: ANT (Analyte); ANST (Analytical study)

(lactones; characterization of suite of ginkgo-containing standard

reference materials)
 IT Mass spectrometry
 (liquid chromatog. combined with; characterization of suite of
 ginkgo-containing standard reference materials)
 IT Liquid chromatography
 (mass spectrometry combined with; characterization of suite of
 ginkgo-containing standard reference materials)
 OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD
 (3 CITINGS)
 REFERENCE COUNT: 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 8 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:659241 HCAPLUS Full-text

DOCUMENT NUMBER: 147:39511

TITLE: Comparison of the terpene lactones and flavonols
 contents in G. biloba commercial samples and the NIST
 standard reference materials using LC/UV/MS
 AUTHOR(S): Mustafa, Ozcan; Brendan, McAuley; Pei, Chen
 CORPORATE SOURCE: Agricultural Research Service, Beltsville Human
 Nutrition Research Center, Food Composition Lab, U.S.
 Department of Agriculture, Beltsville, MD, 20705, USA

SOURCE: Yaowu Shipin Fenxi (2007), 15(1), 55-62

CODEN: YSFEEP; ISSN: 1021-9498

PUBLISHER: Bureau of Food and Drug Analysis, Dep. of Health,
 Executive Yuan

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The leaf extract of Ginkgo biloba has purported value for improving mental
 capacities in Alzheimer's patients. The flavonols and the terpene lactones
 are considered to be the 2 major groups of active components that influence
 human health. Almost all the clin. studies regarding G. biloba were using
 either EGb 761, a proprietary extract of G. Biloba leaves, or an extract
 prepared according to the standard set by it. Consequently, most of the com.
 G. biloba products were labeled with their content accordingly. This paper
 studied the compns. of both flavonols and terpene lactones of 7 com. available
 G. biloba products and 3 standard reference materials (SRM 3246 G. biloba
 leaves, SRM 3247 G. biloba extract, and SRM 3248 G. biloba tablet) from the
 National Institute of Stds. and Technol. (NIST). In this study, a chromatog.
 method with UV and mass spectroscopic detection was employed for the
 determination of the compns. of flavonols and the terpene lactones in Ginkgo
 products using gradient reversed-phase HPLC. MeOH-water (1:1) exts. of
 terpene lactones and flavonols out of G. biloba products and NIST SRMs were
 analyzed qual. and quant. While the relative compns. of the flavonol
 glycosides were similar for the NIST SRMs, those for the com. G. biloba
 products varied significantly. The relative concns. of terpene lactones were
 also shown significant differences among products, but not as dramatic as that
 of flavonols.

CC 64-2 (Pharmaceutical Analysis)

Section cross-reference(s): 63

IT Reversed phase HPLC

(combined with mass spectrometry; comparison of terpene lactones and
 flavonols contents in G. biloba com. samples using LC/UV/MS)

IT Ginkgo biloba

(exts.; comparison of terpene lactones and flavonols contents in G.
 biloba com. samples using LC/UV/MS)

IT Terpenes, analysis

RL: ANT (Analyte); ANST (Analytical study)

(lactones; comparison of terpene lactones and
 flavonols contents in G. biloba com. samples using LC/UV/MS)

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD
(2 CITINGS)
REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 9 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2007:597593 HCAPLUS Full-text
DOCUMENT NUMBER: 147:101987
TITLE: New formulations of traditional Chinese medicine
containing troxerutin and Ginkgo biloba flavonoids for
treating cardiovascular and cerebrovascular diseases
INVENTOR(S): Yu, Wenfeng
PATENT ASSIGNEE(S): Beijing Qiyuanyide Medicine Institute, Peop. Rep.
China
SOURCE: Faming Zhuanli Shengqing Gongkai Shuomingshu, 14pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	-----	-----	-----	-----
CN 1969892	A	20070530	CN 2005-10115004	20051123
PRIORITY APPLN. INFO.:			CN 2005-10115004	20051123
AB	The invention provides new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases. The pharmaceutical composition is composed of (by weight part) troxerutin 1, and Ginkgo biloba leaf flavonoids 0.1-50 or lactones 0.01-50 or mixture of lactones and flavonoids 0.1-30. The pharmaceutical composition can be manufactured into injections, oral preps., etc. The pharmaceutical composition is used for treating coronary heart disease, angina pectoris, myocardial infarction, arrhythmia, cerebral thrombosis, senile dementia, thrombophlebitis, capillary bleeding, diabetes mellitus and complications, hepatorenal syndrome, etc. The manufacturing and quality control methods are also disclosed. The pharmaceutical composition has advantages of high purity, definite constituent, controllable quality, enhanced therapeutic effect, reliable security and stable efficacy.			
CC	63-6 (Pharmaceuticals)			
IT	Section cross-reference(s): 1, 64			
	Terpenes			
	RL: ANT (Analyte); PAC (Pharmacological activity); PRP (Properties); PUR (Purification or recovery); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses) (lactones; new formulations of traditional Chinese medicine containing troxerutin and Ginkgo biloba flavonoids for treating cardiovascular and cerebrovascular diseases)			
IT	Anti-Alzheimer's agents			
	Antiarrhythmics			
	Anticonvulsants			
	Antidiabetic agents			
	Cardiovascular agents			
	Dripping pills			
	Flocculation			
	Freeze drying			
	Ginkgo biloba			
	Human			
	Liquid chromatography			
	Oral drug delivery systems			
	Pharmaceutical capsules			

Pharmaceutical films
 Pharmaceutical granules
 Pharmaceutical liposomes
 Pharmaceutical powders
 Pharmaceutical tablets
 Platelet aggregation inhibitors
 Quality control
 Sedimentation (separation)
 Solvent extraction
 Stability
 (new formulations of traditional Chinese medicine containing troxerutin and
 Ginkgo biloba flavonoids for treating cardiovascular and
 cerebrovascular diseases)

L35 ANSWER 10 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2007:391260 HCAPLUS Full-text
 DOCUMENT NUMBER: 146:448775
 TITLE: Quality control method of traditional Chinese medical
 composition of Astragalus membranaceus and Ginkgo
 biloba
 INVENTOR(S): Yu, Wenfeng
 PATENT ASSIGNEE(S): Beijing Qiyuanyide Medicine Institute, Peop. Rep.
 China
 SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 67pp.
 CODEN: CNXXEV
 DOCUMENT TYPE: Patent
 LANGUAGE: Chinese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
CN 1939393	A	20070404	CN 2005-10107822	20050930
PRIORITY APPLN. INFO.:			CN 2005-10107822	20050930
AB	The invention provides a new quality control method of traditional Chinese medical composition of Astragalus membranaceus and Ginkgo biloba. The quality control method comprises determination of flavonoids of Astragalus membranaceus, flavonoids of Ginkgo biloba leaf, saponins of Astragalus membranaceus, and terpenoid lactone of Ginkgo biloba leaf by fingerprint chromatogram, identification of Astragalus membranaceus, Ginkgo biloba leaf, total flavonol glycosides, terpenoid lactone, formononetin, calycosin, and astragaloside, and content determination of total flavonol glycosides, terpenoid lactone, astragaloside, formononetin, calycosin, and total saponins. The method is reliable, stable and novel for quality control of mass production, and provides digitized illustration for ensuring effectivity and security of the composition			
CC	64-2 (Pharmaceutical Analysis) Section cross-reference(s): 63			
ST	quality control compn Astragalus Ginkgo fingerprint chromatogram HPLC TLC			
IT	Terpenes, analysis RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (lactones, Ginkgo biloba; quality control method of traditional Chinese medical composition of Astragalus membranaceus and Ginkgo biloba)			
IT	Astragalus membranaceus Ginkgo biloba HPLC Natural products, pharmaceutical Quality control			

TLC (thin layer chromatography)

(quality control method of traditional Chinese medical composition of Astragalus membranaceus and Ginkgo biloba)

L35 ANSWER 11 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:391257 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 146:429103

TITLE: Quality control method of traditional Chinese medicine composition of Astragalus membranaceus and Ginkgo biloba

INVENTOR(S): Yu, Wenfeng

PATENT ASSIGNEE(S): Beijing Qiyuanyide Medicine Institute, Peop. Rep. China

SOURCE: Faming Zhuanli Shengqing Gongkai Shuomingshu, 70pp.

CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
CN 1939392	A	20070404	CN 2005-10107820	20050930
PRIORITY APPLN. INFO.:			CN 2005-10107820	20050930

AB The invention provides a quality control method of traditional Chinese medicine composition of Astragalus membranaceus and Ginkgo biloba. The quality control method comprises determination of flavonoids of Astragalus membranaceus, flavonoids of Ginkgo biloba leaf, saponins of Astragalus membranaceus and terpenoid lactone of Ginkgo biloba leaf by fingerprint chromatogram, identification of Astragalus membranaceus, Ginkgo biloba leaf, formononetin, calycosin, total flavonol glycosides, terpenoid lactone and astragaloside, and content determination of total flavonol glycosides, terpenoid lactone, formononetin, calycosin, astragaloside, total saponins and total polysaccharides. The method is reliable, stable and novel for quality control of mass production, and provides digitized illustration for ensuring effectivity and security of the composition

CC 64-2 (Pharmaceutical Analysis)

Section cross-reference(s): 63

ST quality control compn Astragalus Ginkgo chromatogram HPLC TLC

IT Terpenes, analysis

RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

(lactones, Ginkgo biloba; quality control method of traditional Chinese medicine composition of Astragalus membranaceus and Ginkgo biloba)

IT Astragalus membranaceus

Ginkgo biloba

HPLC

Natural products, pharmaceutical

Quality control

TLC (thin layer chromatography)

(quality control method of traditional Chinese medicine composition of Astragalus membranaceus and Ginkgo biloba)

L35 ANSWER 12 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2007:22369 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 146:236345

TITLE: Determination of active components of Ginkgo biloba in human urine by capillary high-performance liquid chromatography/mass spectrometry with on-line

column-switching purification
 AUTHOR(S): Ding, Shujing; Dudley, Ed; Chen, Lijuan; Plummer, Sue;
 CORPORATE SOURCE: Tang, Jiandong; Newton, Russell P.; Brenton, A. Gareth
 Mass Spectrometry Research Unit, University of Wales
 Swansea, Swansea, SA2 8PP, UK
 SOURCE: Rapid Communications in Mass Spectrometry (2006),
 20(24), 3619-3624
 CODEN: RCMSEF; ISSN: 0951-4198
 PUBLISHER: John Wiley & Sons Ltd.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Ginkgo biloba is one of the most popular herbal nutritional supplements, with
 terpene lactones and flavonoids being the two major active components. An
 online purification high-performance liquid chromatog./mass spectrometry
 method was successfully developed for the quant. determination of flavonoids
 and terpene lactones excreted in human urine after ingesting the herbal
 supplement. Satisfactory separation was obtained using a C18 capillary column
 made inhouse with sample clean-up and pre-concentration achieved using a C18
 pre-column with column switching. High selectivity and limits of detection of
 1-18 ng/mL were achieved using a selected ion monitoring scan in neg. ion
 mode; the online solid-phase extraction recovery of the active components in
 Ginkgo biloba determined in this study was greater than 75%.

CC 64-2 (Pharmaceutical Analysis)
 Section cross-reference(s): 1

ST Ginkgo biloba urine analysis liq chromatog mass spectrometry

IT Mass spectrometry
 (HPLC combined with, capillary; active components of Ginkgo biloba
 determination in human urine by capillary high-performance liquid
 chromatog.-mass spectrometry with online column-switching
 purification)

IT Ginkgo biloba
 Human
 Natural products, pharmaceutical
 Purification
 Urine analysis
 (active components of Ginkgo biloba determination in human urine by
 capillary
 high-performance liquid chromatog.-mass spectrometry with
 online column-switching purification)

IT Flavonoids
 RL: ANT (Analyte); NPO (Natural product occurrence); THU (Therapeutic
 use); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence);
 USES (Uses)
 (active components of Ginkgo biloba determination in human urine by
 capillary
 high-performance liquid chromatog.-mass spectrometry with
 online column-switching purification)

IT Terpenes, analysis
 RL: ANT (Analyte); NPO (Natural product occurrence); THU (Therapeutic
 use); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence);
 USES (Uses)
 (lactones; active components of Ginkgo biloba determination in human
 urine by capillary high-performance liquid chromatog.-mass
 spectrometry with online column-switching purification)

IT HPLC
 (mass spectrometry combined with, capillary; active components of
 Ginkgo biloba determination in human urine by capillary high-performance
 liquid
 chromatog.-mass spectrometry with online column-switching
 purification)

IT Extraction
(solid-phase; active components of Ginkgo biloba determination in human urine by capillary high-performance liquid chromatog.-mass spectrometry with online column-switching purification)

IT 153-18-4, Rutin 480-19-3, Isorhamnetin 482-35-9, Quercetin-3- β -D-glucoside 520-18-3, Kaempferol 522-12-3, Quercetin-3-rhamnoside 5508-58-7, Andrographolide 6151-25-3, Quercetin dihydrate 9001-45-0, β -Glucuronidase 9068-67-1, Sulfatase 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7, Ginkgolide B 33570-04-6, Bilobalide

RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(active components of Ginkgo biloba determination in human urine by capillary high-performance liquid chromatog.-mass spectrometry with online column-switching purification)

OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD (8 CITINGS)

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 13 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:1215169 HCAPLUS Full-text

DOCUMENT NUMBER: 146:517243

TITLE: Determination of ginkgolides in Ginkgo biloba by capillary gas chromatography

AUTHOR(S): Liu, Hong-mei; Zhou, Qing-xia; Yang, Wen-ling

CORPORATE SOURCE: College of Chemical and Pharmaceutical Engineering, Hebei University of Science and Technology, Shijiazhuang, Hebei, 050018, Peop. Rep. China

SOURCE: Hebei Keji Daxue Xuebao (2006), 27(3), 209-213
CODEN: HKDXFY, ISSN: 1008-1542

PUBLISHER: Hebei Keji Daxue Xuebao Bianjibu

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The optimum conditions of chromatograph separation were selected for the ginkgolides: bilobalide (BB), ginkgolide A (GA), ginkgolide J (GJ), ginkgolide B (GB) and ginkgolide C (GC). Selecting squalane (SQ) as an internal standard, the weight correction factors of ginkgolides were confirmed by measurement and theor. calcn. The contents of the five ginkgolides were determined by internal standard method. The average recoveries of the method for BB, GA, GB and GC were 92.8%, 93.2%, 92.4% and 94.4%, and RSD were 2.9%, 1.6%, 2.2%, 1.9% and 1.9% resp.

CC 9-3 (Biochemical Methods)

ST Section cross-reference(s): 64

IT ginkgolide capillary gas chromatog Ginkgo

IT Flame ionization detectors

IT Gas chromatography

IT Ginkgo biloba
(determination of ginkgolides in Ginkgo biloba by capillary gas chromatog.)

IT 7631-86-9, Silicon dioxide, analysis

RL: AMX (Analytical matrix); ANST (Analytical study)
(determination of ginkgolides in Ginkgo biloba by capillary gas chromatog.)

IT 15291-75-5P, Ginkgolide A 15291-76-6P, Ginkgolide C 15291-77-7P, Ginkgolide B 33570-04-6P, Bilobalide 167438-79-9P, Ginkgolide J

RL: ANT (Analyte); PUR (Purification or recovery); ANST (Analytical study); PREP (Preparation)

Nizal Chandrakumar 10/579,162

(determination of ginkgolides in Ginkgo biloba by capillary gas chromatog.)

IT 67-56-1, Methanol, analysis 67-64-1, Acetone, analysis 68-12-2
N, N-Dimethylformamide, analysis 75-77-4, Trimethylchlorosilane,
analysis 108-88-3, Toluene, analysis 110-54-3, n-Hexane, analysis
111-01-3, Squalane 141-78-6, Ethyl acetate, analysis 7727-37-9,
Nitrogen, analysis 25561-30-2, Bis(trimethylsilyl)trifluoroacetamide
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(determination of ginkgolides in Ginkgo biloba by capillary gas
chromatog.)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD
(1 CITINGS)

L35 ANSWER 14 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2006:1164539 HCAPLUS Full-text
DOCUMENT NUMBER: 145:511322
TITLE: Quality control method for injection containing ginkgo
and Salvia miltiorrhiza
INVENTOR(S): Yu, Wenyong
PATENT ASSIGNEE(S): Guiyang Yunyan Xichuang Medicinal Technology
Development Co., Ltd., Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 82pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1853674	A	20061101	CN 2006-10200071	20060124
CN 101156893	A	20080409	CN 2007-10201880	20060124
CN 101156894	A	20080409	CN 2007-10201885	20060124
PRIORITY APPLN. INFO.:			CN 2005-10003011	A 20050207
			CN 2006-10200071	A3 20060124

AB The method comprises fingerprint spectrum testing, identifying the ingredient
of ginkgo, ginkgo extract, total flavonoids, and total terpene lactones,
measuring the ingredient of Salvia miltiorrhiza extract or its sodium salt,
protocatechuic aldehyde, lithosperman B or its magnesium salt, tanshinone IIA,
quercetin, and kaempferide. Compared with existing technol., the claimed
method is more effective, more accurate, and more stable.

CC 63-4 (Pharmaceuticals)

IT Terpenes, biological studies
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical
study); BIOL (Biological study)
(lactones; quality control method for injection containing ginkgo
and Salvia miltiorrhiza)

IT Ginkgo biloba
HPLC
Natural products, pharmaceutical
Quality control
Salvia miltiorrhiza
Spectrophotometry
TLC (thin layer chromatography)
(quality control method for injection containing ginkgo and Salvia
miltiorrhiza)

L35 ANSWER 15 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2006:1043882 HCAPLUS Full-text
DOCUMENT NUMBER: 146:13351

TITLE: Quantitative determination of major active components in Ginkgo biloba dietary supplements by liquid chromatography/mass spectrometry

AUTHOR(S): Ding, Shujing; Dudley, Ed; Plummer, Sue; Tang, Jiandong; Newton, Russell P.; Brenton, A. Gareth

CORPORATE SOURCE: Mass Spectrometry Research Unit, University of Wales Swansea, Swansea, SA2 8PP, UK

SOURCE: Rapid Communications in Mass Spectrometry (2006), 20(18), 2753-2760
CODEN: RCMSEF; ISSN: 0951-4198

PUBLISHER: John Wiley & Sons Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A reversed-phase high-performance liquid chromatog./electrospray ionization mass spectrometry (RP-HPLC/ESI-MS) method was developed and validated for the simultaneous determination of ten major active components in Ginkgo biloba extract (bilobalide, ginkgolides A, B, C, quercetin, kaempferol, isorhamnetin, rutin hydrate, quercetin-3- β -D-glucoside and quercitrin hydrate) which were not previously reported to be quantified in a single anal. The ten components exhibit baseline separation in 50 min by C18 chromatog. using a water/1:1 (volume/volume) methanol/acetonitrile gradient. Quantitation was performed using neg. ESI-MS in selected ion monitoring (SIM) mode. Good reproducibility and recovery were obtained by this method. The sensitivity of both UV and different mass spectrometry modes (full scan, selected ion monitoring (SIM), and selected reaction monitoring (SRM)) were compared and both quantitation with and without internal standard were evaluated. The anal. of Ginkgo biloba com. products showed remarkable variations in the rutin and quercetin content as well as the terpene lactone contents although all the products satisfy the conventional quality control method.

CC 64-2 (Pharmaceutical Analysis)

IT Mass spectrometry
(HPLC combined with; quant. determination of major active components in Ginkgo biloba dietary supplements by liquid chromatog./mass spectrometry)

IT Terpenes, analysis
RL: ANT (Analyte); ANST (Analytical study)
(lactones; quant. determination of major active components in Ginkgo biloba dietary supplements by liquid chromatog./mass spectrometry)

IT HPLC
(mass spectrometry combined with; quant. determination of major active components in Ginkgo biloba dietary supplements by liquid chromatog./mass spectrometry)

IT Dietary supplements
Electrospray ionization mass spectrometry
Ginkgo biloba
Reversed phase HPLC
(quant. determination of major active components in Ginkgo biloba dietary supplements by liquid chromatog./mass spectrometry)

IT Flavonoids
RL: ANT (Analyte); ANST (Analytical study)
(quant. determination of major active components in Ginkgo biloba dietary supplements by liquid chromatog./mass spectrometry)

IT 117-39-5, Quercetin 480-19-3, Isorhamnetin 482-35-9,
Quercetin-3- β -D-glucoside 520-18-3, Kaempferol 14402-66-5,
Quercitrin dihydrate 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide B 15291-77-7, Ginkgolide B 33570-04-6, Bilobalide 190836-14-7, Rutin hydrate
RL: ANT (Analyte); ANST (Analytical study)

(quant. determination of major active components in Ginkgo biloba dietary supplements by liquid chromatog./mass spectrometry)

OS.CITING REF COUNT: 18 THERE ARE 18 CAPLUS RECORDS THAT CITE THIS RECORD (18 CITINGS)

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 16 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:907292 HCAPLUS Full-text

DOCUMENT NUMBER: 145:342646

TITLE: Quality control of ginkgo orally disintegrating tablet

INVENTOR(S): Ye, Xiangwu; Zhang, Mei

PATENT ASSIGNEE(S): Guizhou Yibai Pharmaceutical Co., Ltd., Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 26pp. CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
CN 1823852	A	20060830	CN 2005-10003342	20051229
CN 100520404	C	20090729		

PRIORITY APPLN. INFO.: CN 2005-10003342 20051229

AB The patent relates to quality control which has good precision, sensitivity and stability to ensure that the product is safe, even, stable, effective, controllable, etc. The tablet is comprised of Ginkgo biloba extract and pharmaceutic adjuvant at a ratio of 1-10:10-1. The pharmaceutic adjuvant is selected from Et cellulose, mannite, sodium carboxymethyl starch, cross-linked polyvinylpyrrolidone, low-substituted hydroxypropyl cellulose, microcryst. cellulose, aspartame, silica gel, and magnesium stearate, etc. The quality control comprises observing character, checking content according to pharmacopoeia method, and identifying flavonol glycosides and terpene lactones and determining the content of them. The differentiation process consists of grinding the product, adding 10-50% HCl and methanol (1-9:9-1), reflux extracting, filtering, adding distilled water, volatilizing partial solution, extracting with ether for 1-6 times, washing with water 1-5 times, evaporating to dryness, adding methanol to the residue as sample for test, weighing Ginkgo biloba extract and preparing the solution of Ginkgo biloba extract, determining with thin-layer chromatog. (TLC) with toluene, Et acetate, acetone and formic acid (1-20:0.1-50.1-5:0.05-0.5) as developing agent and developing, air drying, spraying 1-10% ethanol solution of aluminum chloride, and observing the color; dotting terpene lactone solution for test and check solution on the same silica gel thin-layer plate with toluene, Et acetate, acetone and formic acid (5-20:1-10:1-10:0.1-1) as as developing agent and developing at 20°, air drying, fumigating with acetic anhydride steam, heating at 140-160°, cooling, viewing, and determining The content of flavonol glycosides and terpene lactones in the tablets is determined by HPLC scanning from 200 nm to 500 nm on C18 column with methanol-0.01-0.1 mol potassium dihydrogen phosphate (1-9:9-1) as mobile phase.

CC 64-2 (Pharmaceutical Analysis)

Section cross-reference(s): 63

IT Terpenes, analysis

RL: ANT (Analyte); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)

(lactones; quality control of orally disintegrating tablets containing Ginkgo exts.)

IT Cardiovascular agents
 Ginkgo biloba
 HPLC
 Natural products, pharmaceutical
 Quality control
 TLC (thin layer chromatography)
 (quality control of orally disintegrating tablets containing Ginkgo exts.)

L35 ANSWER 17 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:682701 HCAPLUS Full-text

DOCUMENT NUMBER: 145:299918

TITLE: Application of reverse-flow micellar electrokinetic chromatography for the simultaneous determination of flavonols and terpene trilactones in Ginkgo biloba dosage forms

AUTHOR(S): Dubber, M.-J.; Kanfer, I.

CORPORATE SOURCE: Faculty of Pharmacy, Division of Pharmaceutics, Rhodes University, Grahamstown, 6139, S. Afr.

SOURCE: Journal of Chromatography, A (2006), 1122(1-2), 266-274

CODEN: JCRAEY; ISSN: 0021-9673

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A reverse-flow micellar electrokinetic chromatog. (RF-MEKC) method was developed for the simultaneous qual. determination of 10 components consisting of the flavonol glycosides, rutin and quercitrin, the flavonol aglycons, isorhamnetin, kaempferol and quercetin, the terpene trilactones, ginkgolides A, B, C and J and the sesquiterpene, bilobalide. This method was used to fingerprint Ginkgo biloba solid oral dosage forms and validated for the quantitation of the marker compds., rutin and quercetin in some com. products. In addition to the usual variables, the influence of some essential background electrolyte (BGE) components such as SDS and β -cyclodextrin concns. were investigated. A polyimide fused-silica square capillary column (75 μ m I.D. \times 360 μ m O.D.) with a total length of 60.0 cm and effective length of 45.0 cm was used for the separation. The final BGE consisted of 20 mM phosphoric acid, 40 mM SDS and 12 mM β -cyclodextrin (pH 2.2) using reverse polarity with a voltage of -17.5 kV. Samples were injected electrokinetically at -5 kV for 3 s for the qual. anal. and hydrodynamically at 20 mbar for 0.6 s for the quant. assay. The total run time was 22 min and the limits of detection were 3.13 μ g/mL and 1.88 μ g/mL for rutin and quercetin, resp. Fingerprint profiles of the solid oral dosage forms and the results of the quant. anal. indicated that there were major discrepancies in the marker content between products and illustrates the value of this method for use as a procedure to assess product quality of com. available Ginkgo biloba products.

CC 64-2 (Pharmaceutical Analysis)

IT Ginkgo biloba

Micellar electrokinetic chromatography

(application of reverse-flow micellar electrokinetic chromatog

. for simultaneous determination of flavonols and terpene trilactones in

Ginkgo

biloba dosage forms)

IT Drug delivery systems

(solids, oral; application of reverse-flow micellar electrokinetic

chromatog. for simultaneous determination of flavonols and terpene

trilactones in Ginkgo biloba dosage forms)

IT 117-39-5, Quercetin 153-18-4, Rutin 480-19-3, Isorhamnetin 520-18-3,

Kaempferol 522-12-3, Quercitrin 15291-75-5, Ginkgolide A 15291-76-6,

Ginkgolide C 15291-77-7, Ginkgolide B 33570-04-6, Bilobalide

Nizal Chandrakumar 10/579,162

107438-79-9, Ginkgolide J

RL: ANT (Analyte); NPO (Natural product occurrence); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence)
(application of reverse-flow micellar electrokinetic chromatog
. for simultaneous determination of flavonols and terpene trilactones
in Ginkgo biloba dosage forms)

IT 151-21-3, Sodium dodecyl sulfate, uses 7585-39-9, β -Cyclodextrin
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(application of reverse-flow micellar electrokinetic chromatog
. for simultaneous determination of flavonols and terpene trilactones in

Ginkgo

biloba dosage forms)

OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD
(8 CITINGS)

REFERENCE COUNT: 61 THERE ARE 61 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 18 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:493217 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 145:130614

TITLE: Quality control method of ginkgo extract-dipyridamole
injection

INVENTOR(S): Ye, Xiangwu; Jiang, Fan; Tang, Xiujing

PATENT ASSIGNEE(S): Guizhou Yibai Pharmaceutical Co., Ltd., Peop. Rep.
China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 46 pp.
CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CN 1772013	A	20060517	CN 2005-10200658	20051031
CN 100358539	C	20080102		

PRIORITY APPLN. INFO.: CN 2005-10200658 20051031

AB The ginkgo extract is identified by HCl-Mg reaction, and clarity, pH value, water content, bacteria content, pyrogen, and insol. particle are all checked. The total flavonoids in ginkgo extract injection is identified by thin layer chromatog. (TLC) with quercetin, isorhamnetin and kaempferol as control and dichloromethane-acetic acid-50-99% ethanol(1-10:1-6:0.2-5) as developing agent. The total terpene lactone in ginkgo extract injection is identified by thin layer chromatog. (TLC) with ginkgolide A, ginkgolide B, ginkgolide C and Bilobalide as control and toluene-Et acetate-acetone-ethanol(5-20:2-10:2-10:0.5-5) a developing agent. The dipyridamole content in injection is determined by HPLC at 288 nm on C18 column with methanol or acetonitrile-0.05-10% sodium dihydrogen phosphate(1-9:9-1) as mobile phase. Total flavonoids content in injection is determined by HPLC at 360 nm on C18 column with methanol or acetonitrile-0.05-10% phosphoric acid(1-9:9-1) as mobile phase and quercetin, isorhamnetin and kaempferol as control. The total terpene lactone content in injection is determined by HPLC with propanol-tetrahydrofuran-water(0.1-10:3-50:20-150) as mobile phase.

CC 63-2 (Pharmaceuticals)

IT Terpenes, biological studies

RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(lactones; quality control method of ginkgo extract-dipyridamole
injection)

IT Ginkgo biloba

HPLC
Quality control
TLC (thin layer chromatography)
(quality control method of ginkgo extract-dipyridamole injection)

L35 ANSWER 19 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:368396 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 145:70236

TITLE: Chromatographic fingerprint analysis-a rational approach for quality assessment of traditional Chinese herbal medicine

AUTHOR(S): Xie, Peishan; Chen, Sibao; Liang, Yi-zeng; Wang, Xianghong; Tian, Runtao; Upton, Roy

CORPORATE SOURCE: Zhuhai Chromap Institute of Herbal Medicine Research, Zhuhai, 519085, Peop. Rep. China

SOURCE: Journal of Chromatography, A (2006), 1112(1-2), 171-180

CODEN: JCRAEY; ISSN: 0021-9673

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Traditional Chinese Herbal Medicine (TCHM) contain multiple botanicals, each of which contains many compds. that may be relevant to the medicine's putative activity. Therefore, anal. techniques that look at a suite of compds., including their resp. ratios, provide a more rational approach to the authentication and quality assessment of TCHM. In this paper the authors present several examples of applying chromatog. fingerprint anal. for determining the identity, stability, and consistency of TCHM as well as the identification of adulterants as follows: (1) species authentication of various species of ginseng (*Panax ginseng*, *Panax quinquefolium*, *Panax notoginseng*) and stability of ginseng preps. using high performance thin-layer chromatog. (HPTLC) fingerprint anal.; (2) batch-to-batch consistency of exts. of Total Glycosides of Peony (TGP), to be used as a raw material and in finished products (TGP powdered extract products), using high performance liquid chromatog. (HPLC) fingerprint anal. with a pattern recognition software interface (CASE); (3) documenting the representative HPLC fingerprints of Immature Fruits of *Terminalia chebula* (IFTC) through the assessment of raw material, in-process assay of the exts., and the anal. of the finished product (tablets); (4) HPLC fingerprint study demonstrating the consistent quality of total flavonoids of com. exts. of ginkgo (*Ginkgo biloba*) leaves (EGb) along with detection of adulterations. The exptl. conditions as well as general comments on the application of chromatog. fingerprint anal. are discussed.

CC 64-2 (Pharmaceutical Analysis)

IT *Ginkgo biloba*

HPLC

Paeonia

Panax ginseng

Panax notoginseng

Panax quinquefolium

Quality control

Terminalia chebula

(chromatog. fingerprint anal. for quality assessment of traditional Chinese herbal medicine)

IT Flavonoids

Ginsenosides

Glycosides

RL: ANT (Analyte); ANST (Analytical study)

(chromatog. fingerprint anal. for quality assessment of traditional Chinese herbal medicine)

IT Natural products, pharmaceutical

(ginseng; chromatog. fingerprint anal. for quality assessment of traditional Chinese herbal medicine)

IT TLC (thin layer chromatography)
(high-performance; chromatog. fingerprint anal. for quality assessment of traditional Chinese herbal medicine)

IT Triterpenes
RL: ANT (Analyte); ANST (Analytical study)
(lactones; chromatog. fingerprint anal. for quality assessment of traditional Chinese herbal medicine)

IT Lactones
RL: ANT (Analyte); ANST (Analytical study)
(triterpene; chromatog. fingerprint anal. for quality assessment of traditional Chinese herbal medicine)

IT 149-91-7, Gallic acid, analysis 153-18-4, Rutin 11021-13-9, Ginsenoside Rb2 11021-14-0, Ginsenoside Rc 18942-26-2, Chebulinic acid 22427-39-0, Ginsenoside Rgl 23094-71-5, Chebulagic acid 23180-57-6, Paeoniflorin 38642-49-8, Benzoylpaeoniflorin 39011-90-0, Albiflorin 41753-43-9, Ginsenoside Rbl 52286-58-5, Ginsenoside Rf 52286-59-6, Ginsenoside Re 52705-93-8, Ginsenoside Rd 78690-50-3, Ginsenoside Ra 80418-24-2, NotoGinsenoside Rl 115038-42-1, Ginsenoside Fll 891194-26-6, Heteroside A 891194-27-7, Heteroside B
RL: ANT (Analyte); ANST (Analytical study)
(chromatog. fingerprint anal. for quality assessment of traditional Chinese herbal medicine)

OS.CITING REF COUNT: 68 THERE ARE 68 CAPLUS RECORDS THAT CITE THIS RECORD (68 CITINGS)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 20 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2006:263453 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 144:338343

TITLE: Determination of terpene trilactones in Ginkgo biloba solid oral dosage forms using HPLC with evaporative light scattering detection

AUTHOR(S): Dubber, M.-J.; Kanfer, I.
CORPORATE SOURCE: Faculty of Pharmacy, Division of Pharmaceuticals, Rhodes University, Grahamstown, 6139, S. Afr.

SOURCE: Journal of Pharmaceutical and Biomedical Analysis (2006), 41(1), 135-140
CODEN: JPBADA; ISSN: 0731-7085

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A reversed phase high performance liquid chromatog. method with evaporative light scattering detection (RP-HPLC-ELSD) was developed for the quant. determination of the terpene trilactones, ginkgolide A, B, C and J and the sesquiterpene, bilobalide in Ginkgo biloba solid oral dosage forms. Separation was achieved using a minibore Phenomenex Luna (5 µm) C18 column with dimensions 250 mm x 2.00 mm maintained at a temperature of 45 °C. A simple gradient method using a mobile phase of methanol:water and a flow rate of 350 µl/min facilitated baseline separation of the selected marker compds. within 14 min. The ELSD parameters affecting the detector response were optimized prior to the validation. The limits of detection and quantification were 31.25 and 62.50 ng, resp. The percentage relative errors of the recovery ranged between -3.16 and +1.88 and both intra-day and inter-day percentage standard deviations were all better than 6%. This method was used to assay com. available Ginkgo biloba products and proved to be suitable for the routine anal. of such products for quality control purposes.

CC 64-2 (Pharmaceutical Analysis)
 IT Ginkgo biloba
 Quality control
 Reversed phase HPLC
 (HPLC determination of terpene trilactones in Ginkgo biloba solid oral dosage forms)
 IT Terpenes, analysis
 RL: ANT (Analyte); ANST (Analytical study)
 (HPLC determination of terpene trilactones in Ginkgo biloba solid oral dosage forms)
 IT 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7
 , Ginkgolide B 33570-04-6, Bilobalide 107438-79-9, Ginkgolide J
 RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
 (HPLC determination of terpene trilactones in Ginkgo biloba solid oral dosage forms)
 OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)
 REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
 L35 ANSWER 21 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2006:160292 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 144:324063
 TITLE: LC-MS characterization of terpene lactones in plasma of experimental animals treated with Ginkgo biloba extracts
 AUTHOR(S): Mauri, Pierluigi; De Palma, Antonella; Pozzi, Francesca; Basilio, Fabrizio; Riva, Antonella; Morazzoni, Paolo; Bombardelli, Ezio; Rossoni, Giuseppe
 CORPORATE SOURCE: CNR, Istituto Tecnologie Biomediche, Segrate (Milan), 93-20090, Italy
 SOURCE: Journal of Pharmaceutical and Biomedical Analysis (2006), 40(3), 763-768
 CODEN: JPBADA; ISSN: 0731-7085
 PUBLISHER: Elsevier B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Liquid chromatog./atmospheric pressure chemical ionization ion trap mass spectrometry (LC/APCI-ITMS) was applied to determine the concentration of terpene lactone in plasma of guinea pigs after chronic administration of Ginkgo biloba extract enriched in ginkgoterpenes in free form (IDN 5380) or complexed with soy phospholipids (IDN 5381). Oral treatment of the animals with ginkgoterpenes resulted to inhibit the bronchoconstriction (ITP) and the concomitant increase of the levels of thromboxane B2 (TXB2) in the circulation caused by histamine (HIST) and platelet activating factor (PAF) in normal guinea pigs or by ovalbumin (OA) in actively sensitized guinea pigs. To compare the protective activities of G. biloba forms (IDN 5380 and IDN 5381), ED50 and dose ratio (DR) values for both parameters (ITP and TXB2) were evaluated. The phytosomal form (IDN 5381) significantly reduced (two- to four-fold as compared to free form, $P < 0.001$) the HIST, PAF or OA-induced airway changes and TXB2 release. In addition it has been observed that the absence of ginkgolide C (GC) in plasma samples (in human and animals) was due to its rapid methylation.
 CC 1-1 (Pharmacology)
 ST liq chromatog mass spectrometry terpene lactone blood analysis Ginkgo
 IT Blood analysis
 Bronchodilators
 Ginkgo biloba

Ion trap mass spectrometry
(LC-MS characterization of terpene lactones in plasma of exptl. animals treated with Ginkgo biloba exts.)

IT Terpenes, biological studies
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(lactones; LC-MS characterization of terpene lactones in plasma of exptl. animals treated with Ginkgo biloba exts.)

IT Mass spectrometry
(liquid chromatog. combined with; LC-MS characterization of terpene lactones in plasma of exptl. animals treated with Ginkgo biloba exts.)

IT Liquid chromatography
(mass spectrometry combined with; LC-MS characterization of terpene lactones in plasma of exptl. animals treated with Ginkgo biloba exts.)

IT 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7
, Ginkgolide B 33570-04-6, Bilobalide
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(LC-MS characterization of terpene lactones in plasma of exptl. animals treated with Ginkgo biloba exts.)

OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 22 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:1319245 HCAPLUS Full-text

DOCUMENT NUMBER: 144:40971

TITLE: Simultaneous quantification of terpenelactones and flavonol aglycones in hydrolyzed Ginkgo biloba extract by liquid chromatography with inline ultraviolet and evaporative light scattering detection

AUTHOR(S): Gray, Dean E.; Messer, Dale; Porter, Andrew; Ferguson, Sherry; Harris, Roger K.; Clark, Alice P.; Algaier, Joseph W.; Overstreet, J. Diane; Smith, Cynthia S.

CORPORATE SOURCE: Midwest Research Institute, Kansas City, MO, 64110-2299, USA

SOURCE: Journal of AOAC International (2005), 88(6), 1613-1620
CODEN: JAINEE; ISSN: 1060-3271

PUBLISHER: AOAC International

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The authors report here a liquid chromatog. (LC) method with inline UV/evaporative light scattering (UV/ELS) detection for the simultaneous quantification of the terpenelactones and flavonol aglycons in a single sample of hydrolyzed Ginkgo biloba extract (GBE). The sample is hydrolyzed by a rapid and convenient oven heating method for 1 h at 90°C with 10% hydrochloric acid. The 1 h hydrolysis was found to be equivalent to the 2.25 h reflux treatment for dry powder extract, where total flavonol glycosides were 28.4 and 28.1%, resp. Acceptable precision was achieved for total terpenelactones [relative standard deviation (RSD) = 4.8%] by ELS detection, and total flavonol aglycons (RSD = 2.3%) by UV detection. The anal. range was 1.5 to 7.3% (weight/weight) for the individual terpenelactones (ELS) and 2.5 to 15.0% (weight/weight) for the individual glycosides (UV) calculated from the aglycons quercetin, kaempferol, and isorhamnetin. This improved method allows for the 1st time high throughput sample preparation coupled with the quantification of the predominant compds. generally used for quality control of GBE in a single assay.

CC 64-2 (Pharmaceutical Analysis)

Section cross-reference(s): 63

ST terpenelactone flavonol aglycon detn Ginkgo biloba liq chromatog stability

IT Ginkgo biloba
(extract; quantification of terpenelactones and flavonol aglycons in hydrolyzed Ginkgo biloba extract by LC)

IT Terpenes, analysis
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(lactones; quantification of terpenelactones and flavonol aglycons in hydrolyzed Ginkgo biloba extract by LC)

IT Anti-ischemic agents
Anticoagulants
Liquid chromatography
Quality control
Stability
(quantification of terpenelactones and flavonol aglycons in hydrolyzed Ginkgo biloba extract by LC)

IT 117-39-5, Quercetin 480-19-3, Isorhamnetin 520-18-3, Kaempferol 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7, Ginkgolide B 33570-04-6, Bilobalide
RL: ANT (Analyte); CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(quantification of terpenelactones and flavonol aglycons in hydrolyzed Ginkgo biloba extract by LC)

OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 23 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:1061219 HCAPLUS Full-text

DOCUMENT NUMBER: 143:455133

TITLE: Preparative isolation of terpene trilactones from Ginkgo biloba leaves

AUTHOR(S): Lai, Shih-Ming; Chen, I-Wen; Tsai, Ming-Jyi

CORPORATE SOURCE: Department of Chemical Engineering, National Yunlin University of Science and Technology, Yunlin, 640, Taiwan

SOURCE: Journal of Chromatography, A (2005), 1092(1), 125-134
CODEN: JCRAEY; ISSN: 0021-9673

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB This study investigated and compared some techniques for the preparative isolation of terpene trilactones, including ginkgolides (GA and GB, etc.) and bilobalide (BB), from Ginkgo biloba leaves. The crude Ginkgo biloba L. exts. (GBE) were prepared using an extractor with solvent refluxing operated under an optimal extraction condition. The extraction yield was 20-23% and the purity of terpene trilactones was about 1.0-1.4 wt%. Before the isolation operations, the exts. were dissolved in de-ionized water. The isolation procedures included the method of liquid-liquid extraction and the method of column chromatog. For the method of liquid-liquid extraction using Et acetate as the organic solvent operated under the optimal extraction conditions, the purity, concentration ratio, and yield of terpene trilactones were 13.5-18.0%, 15-16, and >99%. For the method of column chromatog., XAD-7HP, XAD-4, and C-18 adsorbents with different polarities were used as the packing materials. Only for the XAD-7HP column, a part of more polar impurities was efficiently separated with the majority of terpene trilactones by a proper step-gradient elution, which resulted in an efficient isolation: the purity, concentration

L35 ANSWER 24 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2005:780983 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 143:474357
 TITLE: Adsorption separation of terpene lactones from Ginkgo
 biloba L. extract using glass fiber membranes modified
 with octadecyltrichlorosilane
 AUTHOR(S): Su, I-Fang; Chen, Li-Jen; Suen, Shing-Yi
 CORPORATE SOURCE: Department of Chemical Engineering, National Chung
 Hsing University, Taichung, 402, Taiwan
 SOURCE: Journal of Separation Science (2005), 28(11),
 1211-1220
 CODEN: JSSCCJ; ISSN: 1615-9306
 PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
 DOCUMENT TYPE: Journal
 LANGUAGE: English

CC 9-3 (Biochemical Methods)
Section cross-reference(s): 11. 64

IT Chromatography
(column and liquid; adsorption separation of terpene lactones from Ginkgo biloba using glass fiber membranes modified with octadecyltrichlorosilane)

IT Terpenes, analysis
RL: ANT (Analyte); ANST (Analytical study)
(lactones; adsorption separation of terpene lactones from Ginkgo biloba using glass fiber membranes modified with octadecyltrichlorosilane)

OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)

REFERENCE COUNT: 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 25 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:686245 HCAPLUS Full-text

DOCUMENT NUMBER: 143:302429

TITLE: Ginkgolides and bilobalide: Their physical, chromatographic and spectroscopic properties

AUTHOR(S): van Beek, Teris A.

CORPORATE SOURCE: Laboratory of Organic Chemistry, Natural Products Chemistry Group, Wageningen University, Wageningen, 6703 HB, Neth.

SOURCE: Bioorganic & Medicinal Chemistry (2005), 13(17), 5001-5012

PUBLISHER: Elsevier Ltd.

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review. Ginkgolides A, B, C, J, K, L and M and bilobalide are rare terpene trilactones that have been isolated from leaves and root bark of the Chinese tree Ginkgo biloba. The structures of the highly oxidized ginkgolides were independently elucidated in the 1960s by the groups of Nakanishi and Sakabe. Later these compds. were found to be potent and selective antagonists of platelet activating factor, which fact triggered much new research. During the past 40 years, much phys., chromatog. and spectroscopic data have been published on these compds. in various, sometimes inaccessible, sources. The published m.ps., solubility in different solvents, ionization consts., chromatog. behavior, specific optical rotations, UV, IR, MS and NMR data, and X-ray studies are summarized and, where necessary, discussed. The literature until Apr. 2005 has been reviewed.

CC 11-0 (Plant Biochemistry)

Section cross-reference(s): 30

IT Terpenes, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(lactones, trilactones; phys., chromatog. and spectroscopic properties of ginkgolides and bilobalide)

IT Chromatography
Ginkgo biloba
Spectroscopy
(phys., chromatog. and spectroscopic properties of ginkgolides and bilobalide)

IT Natural products
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(phys., chromatog. and spectroscopic properties of ginkgolides and bilobalide)

IT 33570-04-6, Bilobalide
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(phys., chromatog. and spectroscopic properties of ginkgolides and bilobalide)

Nizal Chandrakumar 10/579,162

OS.CITING REF COUNT: 49 THERE ARE 49 CAPLUS RECORDS THAT CITE THIS RECORD (49 CITINGS)

REFERENCE COUNT: 90 THERE ARE 90 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 26 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:507012 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 143:353291

TITLE: Extraction of terpene lactone from Ginkgo biloba leaves

INVENTOR(S): Dai, Baixiong; Gong, Ting; Qian, Jun

PATENT ASSIGNEE(S): Sanjiangyuan Pharmaceutical Co., Ltd., Suizhou City, Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, No pp. given

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CN 1530363	A	20040922	CN 2003-119744	20030311
CN 1301988	C	20070228		

PRIORITY APPLN. INFO.: CN 2003-119744 20030311

AB The title extraction process includes: (1) pulverizing Ginkgo biloba leaves, (2) extracting the powders by ethanol at 75-85°C, (3) concentrating the extract, (4) adding water into the extract and filtrating, (5) loading the filtrate on a macroporous resin chromatog. column and eluting it by ethanol, (6) concentrating the eluate and extracting it by Et acetate, and (7) concentrating the extract and drying to obtain the product. The product can be used for treating senile dementia, cardiovascular diseases and cerebrovascular diseases. This process is low cost, low environment pollution, and is suitable for industrial production

IC ICM C07D311-30

ICS A61P025-28; A61P009-10

CC 63-4 (Pharmaceuticals)

IT Cardiovascular system, disease

Ginkgo biloba

Human

Liquid chromatography

Solvent extraction

(extraction of terpene lactone from Ginkgo biloba leaves)

IT 15291-75-5P, Ginkgolide A 15291-76-6P, Ginkgolide C

15291-77-7P, Ginkgolide B 33570-04-6P, Bilobalide

RL: PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(extraction of terpene lactone from Ginkgo biloba leaves)

L35 ANSWER 27 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:451255 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 142:487413

TITLE: Separation of ginkgolides and bilobalide from Ginkgo biloba using column chromatography

INVENTOR(S): Nakanishi, Koji; Jaracz, Stanislaw; Malik, Shahid; Ishii, Hideki; Dzyuba, Sergei V.

PATENT ASSIGNEE(S): The Trustees of Columbia University In the City of New York, USA

SOURCE: PCT Int. Appl., 61 pp.

Nizal Chandrakumar 10/579,162

DOCUMENT TYPE: CODEN: PIXXD2
 LANGUAGE: Patent
 FAMILY ACC. NUM. COUNT: English
 PATENT INFORMATION: 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005046829	A2	20050526	WO 2004-US37412	20041109
WO 2005046829	A3	20051110		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 20080108837	A1	20080508	US 2007-579162	20070905
PRIORITY APPLN. INFO.:			US 2003-519840P	P 20031112
			WO 2004-US37412	W 20041109

OTHER SOURCE(S): MARPAT 142:487413

AB The subject invention provides a method for separating a terpene trilactone from Ginkgo biloba plant material or from an extract of Ginkgo biloba comprising a mixture of terpene trilactones. The process comprises the steps of: (a) subjecting the Ginkgo biloba plant material or the extract to column chromatog. with an appropriate solvent system to produce at least a first fraction containing the terpene trilactone bilobalide, a second fraction eluted after the first fraction containing the terpene trilactones ginkgolide A and ginkgolide B, and a third fraction eluted after the second fraction containing at least a preponderance of the terpene trilactones ginkgolide C and ginkgolide J; and (b) alkylating the terpene trilactone ginkgolide B of the second fraction so as to produce a first mixture including terpene trilactone ginkgolide A and alkylated terpene trilactone ginkgolide B; or alkylating the terpene trilactone ginkgolide C of the third fraction so as to produce a second mixture including terpene trilactone ginkgolide J and alkylated terpene trilactone ginkgolide C, so as to thereby isolate a terpene trilactone. For example, the enriched extract of Ginkgo biloba (4.0 g) in min. amount of Et acetate was loaded on silica gel (100 g) column. The column was slowly eluted with Et acetate/hexanes solvent mixts. The fraction collected at 45% Et acetate/hexanes contained bilobalide (0.4 g). The fractions collected at 50% Et acetate/hexanes contained small amts. of impure bilobalide and ginkgolide A then mixture ginkgolide A/ginkgolide B. The fractions collected at 55% Et acetate/hexanes contained ginkgolide A/ginkgolide B (1.1 g). The fractions collected at 60% Et acetate/hexanes contained mixture of ginkgolide C/ginkgolide J (0.4 g) with small amts. of ginkgolide A and ginkgolide B. To a ginkgolide mixture (1.08 g, ginkgolide B 25% weight/weight, ginkgolide A 74% weight/weight) was added potassium carbonate 879 mg, DMF 11 mL, benzyl bromide 756 mL. The mixture was stirred and quenched with 1M HCl (18 mL) and solution was extracted with Et acetate and dried with magnesium sulfate. The product mixture was suspended in chloroform (10 mL), filtered to obtain 605 mg of ginkgolide A as white powder. The filtrate was concentrated and purified by gradient column chromatog. (30 - 50 % Et acetate/hexanes) to obtain 326 mg of benzylated ginkgolide B and 134 mg of ginkgolide A. Catalytic hydrogenation of 322 mg of benzylated ginkgolide B yielded 257 mg of ginkgolide B.

IC ICM B01D

CC 63-4 (Pharmaceuticals)
 Section cross-reference(s): 30

ST terpene lactone benzylation liq chromatog hydrogenolysis; ginkgolide bilobalide benzylation liq chromatog hydrogenolysis

IT Terpenes, biological studies
 RL: NPO (Natural product occurrence); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); USES (Uses)
 (lactones; separation of terpene lactones from Ginkgo biloba using column chromatog.)

IT Benzylation
 Ginkgo biloba
 Hydrogenolysis
 Liquid chromatography
 (separation of ginkgolides and bilobalide from Ginkgo biloba using column chromatog.)

IT 15291-76-6P, Ginkgolide C 15291-77-7P, Ginkgolide B
 RL: NPO (Natural product occurrence); PUR (Purification or recovery); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); USES (Uses)
 (separation of ginkgolides and bilobalide from Ginkgo biloba using column chromatog.)

IT 15291-75-5P, Ginkgolide A 33570-04-6P, Bilobalide 107438-79-9P, Ginkgolide J
 RL: NPO (Natural product occurrence); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); USES (Uses)
 (separation of ginkgolides and bilobalide from Ginkgo biloba using column chromatog.)

IT 534-17-8, Cesium carbonate 584-08-7, Potassium carbonate
 RL: NUU (Other use, unclassified); USES (Uses)
 (separation of ginkgolides and bilobalide from Ginkgo biloba using column chromatog.)

IT 100-39-0, Benzyl bromide 106-95-6, Allyl bromide, reactions 2746-25-0, P-Methoxy-benzylbromide 4392-24-9, Cinnamyl bromide 17690-16-3, Benzyloxymethyl bromide
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (separation of ginkgolides and bilobalide from Ginkgo biloba using column chromatog.)

IT 170288-58-1P 502421-88-7P 852046-13-0P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (separation of ginkgolides and bilobalide from Ginkgo biloba using column chromatog.)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 28 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2005:391574 HCAPLUS Full-text
 DOCUMENT NUMBER: 142:459693
 TITLE: Chromatography for isolation of high-activity extract of Ginkgo biloba
 INVENTOR(S): Hu, Weiwan; Xie, Bijun; Yang, Erning; He, Jingren
 PATENT ASSIGNEE(S): Central China University of Agricultural Science, Peop. Rep. China
 SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 13 pp.
 CODEN: CNXKEV
 DOCUMENT TYPE: Patent

Nizal Chandrakumar 10/579,162

LANGUAGE: Chinese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1436784	A	20030820	CN 2002-115533	20020207
CN 1166675	C	20040915		

PRIORITY APPLN. INFO.: CN 2002-115533 20020207

AB Described is extractant for producing high-activity extract of Ginkgo biloba and purification of Ginkgo exts. The extractant contains 0.04-0.2% sulfite or bisulfite (pH 3.5-5.5). The method comprises extracting Ginkgo biloba leaves with the extractant at 30-100° twice, each for 0.5-20 h, purifying on adsorbent resin column with 30-95% lower alc. as eluent, vacuum concentrating at <50°, and drying. The level of ginkgolic acid of Ginkgo biloba extract is detected by HPLC with 0.005-0.05M Ag+-containing methanol -water (70-90:10-30) as mobile phase.

IC ICM C07H017-04
 ICS C07H001-08; C07D493-22; C07C065-03; C07C051-48; C07B063-00; A61K035-78; B01D011-04

CC 9-3 (Biochemical Methods)

ST Ginkgo ext purifn chromatog; ginkgolic acid detn HPLC

IT Chromatography
 Ginkgo biloba
 (chromatog. for isolation of high-activity extract of Ginkgo biloba)

IT Resins
 RL: NUU (Other use, unclassified); USES (Uses)
 (chromatog. for isolation of high-activity extract of Ginkgo biloba)

IT Proanthocyanidins
 RL: ANT (Analyte); ANST (Analytical study)
 (detection of; chromatog. for isolation of high-activity extract of Ginkgo biloba)

IT Reversed phase HPLC
 (for detection of ginkgolic acid; chromatog. for isolation of high-activity extract of Ginkgo biloba)

IT Terpenes, analysis
 RL: ANT (Analyte); ANST (Analytical study)
 (lactones, detection of; chromatog. for isolation of high-activity extract of Ginkgo biloba)

IT 67-56-1, Methanol, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (chromatog. for isolation of high-activity extract of Ginkgo biloba)

IT 481-46-9, Ginkgetin 16611-84-0 20261-38-5 22910-60-7, Ginkgolic acid 76261-15-9
 RL: ANT (Analyte); ANST (Analytical study)
 (detection of; chromatog. for isolation of high-activity extract of Ginkgo biloba)

IT 64-17-5, Ethanol, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (in elution buffer; chromatog. for isolation of high-activity extract of Ginkgo biloba)

L35 ANSWER 29 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2005:273104 HCAPLUS [Full-text](#)
 DOCUMENT NUMBER: 142:335147
 TITLE: Liquid chromatography/electrospray tandem mass spectrometry of terpenoid lactones in Ginkgo biloba

AUTHOR(S): Sun, Yongkai; Li, Wenkui; Fitzloff, John F.; Van Breenen, Richard B.

CORPORATE SOURCE: Department of Medicinal Chemistry and Pharmacognosy, UIC/NIH Center for Botanical Dietary Supplements Research, College of Pharmacy, University of Illinois at Chicago, Chicago, IL, 60612, USA

SOURCE: Journal of Mass Spectrometry (2005), 40(3), 373-379
CODEN: JMSPFJ; ISSN: 1076-5174

PUBLISHER: John Wiley & Sons Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Ginkgo biloba (ginkgo) is one of most frequently used botanical dietary supplements. The bioactive constituents include the terpenoid lactones consisting of bilobalide and the ginkgolides A, B, C and J. A new assay based on high-performance liquid chromatog./electrospray tandem mass spectrometry (LC/MS/MS) was developed for the measurement of the terpenoid lactones in ginkgo products such as leaf powder and exts. Initially, the MS/MS fragmentation pathways of ginkgolides were investigated to identify abundant fragment ions that might be useful for the sensitive and selective detection of ginkgolides and bilobalide during LC/MS/MS. Then, sample preparation and clean-up procedures were streamlined to maximize throughput by taking advantage of the selectivity of LC/MS/MS detection. Analyte recoveries exceeded 90%, the intra-assay and inter-assay relative standard deviations were <5%, the relative error was <8% and the limits of detection and quantification were 3.6-120 and 11-350 fmol, depending on the analyte that was injected on to the LC column. Therefore, this LC/MS/MS assay facilitated the rapid quant. anal. of ginkgolides A, B, C and J and bilobalide in ginkgo dietary supplements with excellent recovery, reproducibility, accuracy and sensitivity.

CC 17-1 (Food and Feed Chemistry)

IT Terpenes, analysis

RL: ANT (Analyte); ANST (Analytical study)
(lactones; terpenoid lactones of Ginkgo biloba determined by HPLC-ESI-MS-MS)

IT HPLC
(mass spectrometry combined with; terpenoid lactones of Ginkgo biloba determined by HPLC-ESI-MS-MS)

IT Dietary supplements
Ginkgo biloba
(terpenoid lactones of Ginkgo biloba determined by HPLC-ESI-MS-MS)

IT 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7
, Ginkgolide B 33570-04-6, Bilobalide 107438-79-9, Ginkgolide J
RL: ANT (Analyte); ANST (Analytical study)
(terpenoid lactones of Ginkgo biloba determined by HPLC-ESI-MS-MS)

OS.CITING REF COUNT: 11 THERE ARE 11 CAPLUS RECORDS THAT CITE THIS RECORD (11 CITINGS)

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 30 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:886401 HCAPLUS Full-text

DOCUMENT NUMBER: 142:62866

TITLE: Isolation of ginkgolides A, B, C, J and bilobalide from G. biloba extracts

AUTHOR(S): Jaracz, Stanislav; Malik, Shahid; Nakanishi, Koji

CORPORATE SOURCE: Department of Chemistry, Columbia University, NY, 10027, USA

SOURCE: Phytochemistry (Elsevier) (2004), 65(21), 2897-2902
CODEN: PYTCAS; ISSN: 0031-9422

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Ginkgolides A, B, C and J, together with bilobalide, are unique terpenoid components of the Ginkgo biloba tree. Due to similar chemical properties, their separation is quite tedious. We have developed an efficient and rapid protocol for separation of individual ginkgolides and bilobalide from G. biloba exts. The procedure takes advantage of enhanced susceptibility of ginkgolides B and C to benzylation and the ease of separation of these products from ginkgolides A and J which do not react. The protocol is applicable to the previously reported enriched exts. prepared from G. biloba leaves. A single chromatog. step prior to benzylation provides bilobalide and mixture of ginkgolides A, B, C, and J. After benzylation, the individual ginkgolides are separated by chromatog.

CC 64-2 (Pharmaceutical Analysis)
 Section cross-reference(s): 30, 63

ST bilobalide ginkgolide Ginkgo benzylation chromatog hydrogenolysis

IT Ginkgo biloba
 Liquid chromatography
 (isolation of ginkgolides and bilobalide from Ginkgo biloba exts. by benzylation, chromatog. and hydrogenolysis)

IT 15291-75-5, Ginkgolide A 33570-04-6, Bilobalide 107438-79-9, Ginkgolide J
 RL: ANT (Analyte); ANST (Analytical study)
 (isolation of ginkgolides and bilobalide from Ginkgo biloba exts. by benzylation, chromatog. and hydrogenolysis)

IT 15291-76-6, Ginkgolide C 15291-77-7, Ginkgolide B
 RL: ANT (Analyte); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent)
 (isolation of ginkgolides and bilobalide from Ginkgo biloba exts. by benzylation, chromatog. and hydrogenolysis)

IT 100-39-0, Benzyl bromide
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (isolation of ginkgolides and bilobalide from Ginkgo biloba exts. by benzylation, chromatog. and hydrogenolysis)

IT 170288-58-1P, 10-O-Benzyl-ginkgolide B 502421-88-7P,
 10-O-Benzyl-ginkgolide C
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (isolation of ginkgolides and bilobalide from Ginkgo biloba exts. by benzylation, chromatog. and hydrogenolysis)

OS.CITING REF COUNT: 12 THERE ARE 12 CAPLUS RECORDS THAT CITE THIS RECORD (12 CITINGS)

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 31 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:485409 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 141:179751

TITLE: A Method for Extraction and Quantification of Ginkgo Terpene Trilactones

AUTHOR(S): Ding, Chen; Chen, Erqin; Zhou, Weijia; Lindsay, Robert C.

CORPORATE SOURCE: Department of Food Science, University of Wisconsin Madison, Madison, WI, 53711, USA

SOURCE: Analytical Chemistry (2004), 76(15), 4332-4336
 CODEN: ANCHAM; ISSN: 0003-2700

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A method was developed for the extraction and quantification of pharmacol. active terpene trilactones (ginkgolides, bilobalide) from the tissues of Ginkgo biloba L. and pharmaceutical ginkgo products by RP-HPLC, based on the theory of terpene trilactones ionization. Four ginkgolides (GA, GB, GC, GJ) and bilobalide (BB) from both the ginkgo leaves and com. available ginkgo exts. were quant. extracted by using this method. The recovery rate of the method was 97.5-100% with RSD of 1.2-2.8%. The detection limit was 0.05-0.1 µg, and the linear range was 0.1-12 µg. This detection limit represents a marked improvement over previously reported methods, suggesting the new method is a viable technique for routine anal. of ginkgo terpene trilactones in natural and com. samples. The method reported by van Beek et al. in 1991 was used as a reference method to monitor the accuracy of extraction and anal. in this study. SSI-MS technique was used to identify isolated target components. Carbohydrase treatment and solubility of terpene trilactones in various solvents were also discussed.

CC 64-2 (Pharmaceutical Analysis)

IT Mass spectrometry
(liquid chromatog. combined with; method for extraction and quantification of Ginkgo terpene trilactones)

IT Liquid chromatography
(mass spectrometry combined with; method for extraction and quantification of Ginkgo terpene trilactones)

IT Extraction
Ginkgo biloba
Leaf
Reversed phase HPLC
pH
(method for extraction and quantification of Ginkgo terpene trilactones)

IT Terpenes, analysis
RL: ANT (Analyte); PUR (Purification or recovery); ANST (Analytical study); PREP (Preparation)
(method for extraction and quantification of Ginkgo terpene trilactones)

IT 15291-75-5P, Ginkgolide A 15291-76-6P, Ginkgolide C
15291-77-7P, Ginkgolide B 33570-04-6P, Bilobalide
107438-79-9P, Ginkgolide J
RL: ANT (Analyte); PUR (Purification or recovery); ANST (Analytical study); PREP (Preparation)
(method for extraction and quantification of Ginkgo terpene trilactones)

OS.CITING REF COUNT: 6 THERE ARE 6 CAPLUS RECORDS THAT CITE THIS RECORD (6 CITINGS)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 32 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:401393 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 141:301561

TITLE: Rapid determination of terpene lactones in Ginkgo biloba commercial products by HPLC with evaporative light-scattering detection

AUTHOR(S): Herring, Tim

CORPORATE SOURCE: Alltech Associates, Inc., State College, PA, 16801, USA

SOURCE: LCGC North America (2004), 22(5), 456-462
CODEN: LNACBH; ISSN: 1527-5949

PUBLISHER: Advanstar Communications, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A rapid, sensitive, and reproducible HPLC gradient method was developed for the measurement of ginkgolides A, B, C, and J, along with bilobalide, in a G. biloba com. product. The separation was achieved in <14 min, by using a H2O-MeOH-CF3CO2H mobile phase and an evaporative light-scattering detector. No sample clean-up procedures were used with the methanol extraction of the G. biloba dietary supplement. The detection limit is <125 ng on-column for each terpene lactone on a reversed-phase C18 column. Both intra- and interday reproducibility were evaluated. Four brands of standardized Ginkgo biloba herbal supplements were assessed for their terpene lactone content. This method is applicable for analyzing a G. biloba dietary supplement in capsule, tablet, or liquid forms.

CC 64-2 (Pharmaceutical Analysis)
Section cross-reference(s): 17

ST terpene lactone detn Ginkgo HPLC light scattering; liq chromatog terpene lactone detn Ginkgo

IT Dietary supplements
Ginkgo biloba
HPLC
(determination of terpene lactones in Ginkgo biloba com. products by HPLC with evaporative light-scattering detection)

IT Terpenes, analysis
RL: ANT (Analyte); ANST (Analytical study)
(lactones; determination of terpene lactones in Ginkgo biloba com. products by HPLC with evaporative light-scattering detection)

IT 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7
Ginkgolide B 107438-79-9, Ginkgolide J
RL: ANT (Analyte); ANST (Analytical study)
(determination of terpene lactones in Ginkgo biloba com. products by HPLC with evaporative light-scattering detection)

OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD (7 CITINGS)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 33 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:724195 HCAPLUS Full-text

DOCUMENT NUMBER: 140:81993

TITLE: Quality and quantity analysis of terpene lactones from Ginkgo biloba leaves by GC-MS

AUTHOR(S): Tang, Hongfang; Zheng, Ziqiang; Zhu, Xiaoyu; Mao, Lizhen

CORPORATE SOURCE: Zhejiang Academy of Medical Science, Hangzhou, 310013, Peop. Rep. China

SOURCE: Zhongcaoyao (2003), 34(3), 214-217
CODEN: CTYAD8; ISSN: 0253-2670

PUBLISHER: Zhongcaoyao Zazhi Bianjibu

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The capillary GC-MS anal. method for identification and determination of ginkgolide A, B, C and bilobalide (GA, GB, GC, and BB) in Ginkgo biloba L. leaves was presented. The leave samples were extracted in ultrasonic bath with ethanol-water (20:80). The extract was purified by liquid-liquid extraction with Et acetate followed by solid-phase extraction on a column mixed with acid Al2O3, activated C, and celite. The terpenes were trimethylsilylated by bis(trimethylsilyl)trifluoroacetamide (BSTFA) (with 1% chlorotrimethylsilane (TMCS)) at 100° for 60 min and determined by GC-MS with HP-5 MS capillary column in the selected-ion monitoring mode. The intense fragment ions were chosen as monitoring ions for quant. anal. Cholesterol was

used as an internal standard Column temperature gradient: initial temperature 180° maintained 1 min, and then increased at 20° min⁻¹ to 260°, and finally at 2° min⁻¹ up to 300° maintained 2 min. The retention times of GA, GB, GC, and BB were 13.7, 14.3, 15.3 and 6.8 min, the major fragmentation ions (monitoring) were at m/z 537, 625, 713, and 455 (299), the average recoveries of GA, GB, GC and BB were 102.0, 99.4, 96.0, and 96.3%, RSD 0.54, 2.4, 1.98, and 2.43%, resp. The method was repeatable, specific, accurate, and easy to operate, and suitable for quality and quantity anal. of terpene lactones from *G. biloba* leaves.

CC 63-4 (Pharmaceuticals)

IT Gas chromatography

Ginkgo biloba

Mass spectrometry

(terpene lactones in Ginkgo biloba leaves)

IT 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7

, Ginkgolide B 33570-04-6, Bilobalide

RL: NPO (Natural product occurrence); BIOL (Biological study); OCCU (Occurrence)

(terpene lactones in Ginkgo biloba leaves)

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD
(2 CITINGS)

L35 ANSWER 34 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:608626 HCAPLUS Full-text

DOCUMENT NUMBER: 139:185402

TITLE: Ginkgo preparations

AUTHOR(S): Kressmann, Sabine

CORPORATE SOURCE: Pharmakologisches Institut fuer Naturwissenschaftler,
Frankfurt am Main, D-60439, Germany

SOURCE: Deutsche Apotheker Zeitung (2003), 143(18),
61-66, 69-73

CODEN: DAZE2; ISSN: 0011-9857

PUBLISHER: Deutscher Apotheker Verlag

DOCUMENT TYPE: Journal; General Review

LANGUAGE: German

AB A review is given on the pharmaceutical quality of Ginkgo biloba-containing preps. from the US American market. The content of flavone glycosides, terpene lactones, and ginkgolic acid varied considerable. The bioavailability is discussed.

CC 63-0 (Pharmaceuticals)

Section cross-reference(s): 64

ST review Ginkgo flavone glycoside terpene lactone ginkgolic acid chromatog

IT Terpenes, analysis

RL: ANI (Analyte); ANST (Analytical study)

(lactones; pharmaceutical quality of Ginkgo preps.)

IT Chromatography

Ginkgo biloba

Quality control

(pharmaceutical quality of Ginkgo preps.)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD
(1 CITINGS)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 35 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:598252 HCAPLUS Full-text

DOCUMENT NUMBER: 140:70227

TITLE: Liquid chromatography/atmospheric pressure chemical
ionization ion trap mass spectrometry of terpene
lactones in plasma of animals

AUTHOR(S): Mauri, Pierluigi; Minoggio, Markus; Iemoli, Loredana; Rossoni, Giuseppe; Morazzoni, Paolo; Bombardelli, Ezio; Pietta, Piergiorgio

CORPORATE SOURCE: Istituto Tecnologie Biomediche-CNR, Segrate, Milan, 20090, Italy

SOURCE: Journal of Pharmaceutical and Biomedical Analysis (2003), 32(4-5), 633-639
CODEN: JPBADA; ISSN: 0731-7085

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Liquid chromatog./atmospheric pressure chemical ionization ion trap mass spectrometry (LC/APCI-ITMS) was applied to evaluate the bioavailability of two different forms (free and complexed with soy phospholipids) of pure bilobalide and ginkgolide B in rats after acute administration. The same technique was used to measure the levels of ginkgolide A, B and bilobalide in plasma of guinea pigs fed Ginkgo biloba extract enriched in terpene lactones after chronic administration. The ratio RP/RA increased two to four times after the administration in the phytosomal form, where RP and RA represent the percentage ratio between the concentration of each terpene lactone in plasma and in the administered form, resp.

CC 1-2 (Pharmacology)

ST Section cross-reference(s): 11, 63
Liquidchromatog atm pressure chem ionization iontrap massspectrometry
Ginkgo plasma; bilobalide ginkgolide phospholipid complex pharmacokinetics
bronchodilator bioavailability airway inflammation

IT Bronchodilators
Drug bioavailability
Ion trap mass spectrometry
Liquid chromatography
(LC APCI ITMS of Ginkgo terpene lactones in plasma)

IT Ginkgo biloba
(ginkgoterpene enriched extract; LC APCI ITMS of Ginkgo terpene lactones in plasma)

IT Terpenes, biological studies
RL: NPO (Natural product occurrence); PAC (Pharmacological activity); PKT (Pharmacokinetics); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); USES (Uses)
(lactones; LC APCI ITMS of Ginkgo terpene lactones in plasma)

IT 15291-75-5P, Ginkgolide A 15291-77-7DP, Ginkgolide B, complexed with soy phospholipids 15291-77-7P, Ginkgolide B 33570-04-6DP, Bilobalide, complexed with soy phospholipids 33570-04-6P, Bilobalide
RL: NPO (Natural product occurrence); PAC (Pharmacological activity); PKT (Pharmacokinetics); PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); USES (Uses)
(LC APCI ITMS of Ginkgo terpene lactones in plasma)

OS.CITING REF COUNT: 14 THERE ARE 14 CAPLUS RECORDS THAT CITE THIS RECORD (14 CITINGS)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 36 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:118417 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 138:150364

TITLE: Method for isolating terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of

Nizal Chandrakumar 10/579,162

INVENTOR(S): Ginkgo biloba
Lichtblau, Dirk; Berova, Nina; Berger, John;
Nakanishi, Koji
PATENT ASSIGNEE(S): The Trustees of Columbia University in the City of New
York, USA
SOURCE: U.S. Pat. Appl. Publ., 17 pp., Cont.-in-part of U.S.
Ser. No. 903049, abandoned.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20030031736	A1	20030213	US 2002-194089	20020711
US 6590109	B2	20030708		
AT 343393	T	20061115	AT 2002-748132	20020711
US 20040077883	A1	20040422	US 2003-615346	20030707
US 6844451	B2	20050118		
US 20050136136	A1	20050623	US 2005-36409	20050114
PRIORITY APPLN. INFO.:			US 2001-903049	B2 20010711
			US 2002-194089	A1 20020711
			US 2003-615346	A1 20030707

AB A method of isolating terpene trilactones from Ginkgo biloba plant material or extract comprising the steps of suspending the plant material or extract in either water or an aqueous solution of an oxidation reagent; extracting the terpene trilactones using an acceptable extraction agent; separating the organic layer from the aqueous layer; washing the organic layer with an acceptable aqueous salt or hydroxide solution, which may be an alkaline solution; and drying the organic layer to form a dried extract containing terpene trilactones. Further purification by treatment with or filtration over activated charcoal, by treatment with or filtration over alumina and by recrystn. with an acceptable solvent or solvent mixture leads to exts. with a content of terpene trilactones higher than 50%. Unwanted levels of ginkgolide acids are reduced to acceptable levels by reversed phase chromatog.

IC ICM C07D311-78
ICS C07D498-14; A61K035-78
INCL 424752000; 549280000
CC 11-1 (Plant Biochemistry)
Section cross-reference(s): 63
IT Ginkgo biloba
(extraction of terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba)
IT Reversed phase chromatography
(for isolating terpene trilactones (ginkgolides, bilobalide) from Ginkgo biloba)
IT Terpenes, biological studies
RL: NPO (Natural product occurrence); PUR (Purification or recovery); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation)
(lactones; extraction of terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba)
IT Extraction
(of terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba)
IT 15291-75-5P, Ginkgolide A 15291-76-6P, Ginkgolide C
15291-77-7E, Ginkgolide B 33570-04-6P, Bilobalide
167438-79-9P, Ginkgolide J

Nizal Chandrakumar 10/579,162

RL: NPO (Natural product occurrence); PUR (Purification or recovery); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation)

(extraction of terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba)

IT 64-19-7, Acetic acid, reactions 144-55-8, Sodium bicarbonate, reactions 497-19-8, Sodium carbonate, reactions 584-08-7, Potassium carbonate 1310-58-3, Potassium hydroxide, reactions 1310-73-2, Sodium hydroxide, reactions 7647-01-0, Hydrochloric acid, reactions 7664-38-2, Phosphoric acid, reactions 7664-93-9, Sulfuric acid, reactions 7697-37-2, Nitric acid, reactions 7722-84-1, Hydrogen peroxide, reactions 7757-83-7, Sodium sulfite 7772-98-7, Sodium thiosulfate 12125-02-9, Ammonium chloride, reactions 16721-80-5, Sodium hydrosulfide

RL: RGT (Reagent); RACT (Reactant or reagent)

(extraction of terpene trilactones (ginkgolides, bilobalide) from leaves

and

pharmaceutical powders of Ginkgo biloba)

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L35 ANSWER 37 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:57921 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 138:112404

TITLE: Method for isolating terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba

INVENTOR(S): Litchblau, Dirk Andreas; Berger, John; Berova, Nina; Nakanishi, Koji

PATENT ASSIGNEE(S): The Trustees of Columbia University in the City of New York, USA

SOURCE: PCT Int. Appl., 45 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003006040	A1	20030123	WO 2002-US22101	20020711
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
CA 2453467	A1	20030123	CA 2002-2453467	20020711
AU 2002318305	A1	20030129	AU 2002-318305	20020711
EP 1416949	A1	20040512	EP 2002-748132	20020711
EP 1416949	B1	20061025		
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK			
AT 343393	T	20061115	AT 2002-748132	20020711
HK 1065939	A1	20070525	HK 2004-108587	20041101
PRIORITY APPLN. INFO.:			US 2001-903049	A2 20010711

AB A method of isolating terpene trilactones from Ginkgo biloba plant material or extract comprising the steps of suspending the plant material or extract in either water or an aqueous solution of an oxidation reagent; extracting the terpene trilactones using an acceptable extraction agent; separating the organic layer from the aqueous layer; washing the organic layer with an acceptable aqueous salt or hydroxide solution, which may be an alkaline solution; and drying the organic layer to form a dried extract containing terpene trilactones. Further purification by treatment with or filtration over activated charcoal, by treatment with or filtration over alumina and by recrystn. with an acceptable solvent or solvent mixture leads to exts. with a content of terpene trilactones higher than 50%. Unwanted levels of ginkgolic acids are reduced to acceptable levels by reversed phase chromatog.

IC ICM A61K035-78
ICS C07D307-77

CC 63-4 (Pharmaceuticals)

IT ~~Extraction~~
Ginkgo biloba
(extraction of terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba)

IT Terpenes, biological studies
RL: NPO (Natural product occurrence); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PROC (Process); USES (Uses)
(lactones; extraction of terpene trilactones
(ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba)

IT 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide c 15291-77-7
, Ginkgolide B 33570-04-6, Bilobalide 107438-79-9, Ginkgolide j
RL: NPO (Natural product occurrence); PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); PROC (Process); USES (Uses)
(extraction of terpene trilactones (ginkgolides, bilobalide) from leaves and pharmaceutical powders of Ginkgo biloba)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD
(1 CITINGS)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 38 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:775502 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 138:210425

TITLE: HPLC determination of flavonoids and terpene lactones
in commercial Ginkgo biloba products

AUTHOR(S): Li, Wenkui; Fitzloff, John F.

CORPORATE SOURCE: Functional Foods for Health (FFH) Core Analytical
Laboratory, Program for Collaborative Research in
Pharmaceutical Sciences and Department of Medicinal
Chemistry and Pharmacognosy, College of Pharmacy,
University of Illinois at Chicago, Chicago, IL, 60612,
USA

SOURCE: Journal of Liquid Chromatography & Related
Technologies (2002), 25(16), 2501-2514
CODEN: JLCTFC; ISSN: 1082-6076

PUBLISHER: Marcel Dekker, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Ginkgo biloba products are one of the top ten botanical dietary supplements in the USA. The active constituents include flavonoids and terpene lactones

(ginkgolides and bilobalide). Ginkgo flavonoids were associated with reduced lipid peroxidn. in vascular walls and nerve cells. Ginkgolides are well known to be antagonists of platelet-activating factor (PAF). Usually, enriched ginkgo exts. used for the preparation of ginkgo products are standardized to contain 24% flavonoids and 6% terpene lactones. In the present work, we examined nine com. ginkgo products for the content of total flavonoids and terpene lactones by using high performance liquid chromatog. (HPLC) with UV and evaporative light scattering detection (ELSD), resp. The methods are reliable and sensitive with detection limits of 2 ng for flavonoids on column with HPLC-UV and 20-35 ng for terpene lactones on column with HPLC-ELSD. The results show that most of the com. ginkgo products tested contain flavonoids and terpene lactones as claimed on the label.

CC 64-2 (Pharmaceutical Analysis)

ST flavonoid terpene lactone detn HPLC; liq chromatog detn flavonoid terpene lactone

IT Ginkgo biloba

HPLC

(determination of flavonoids and terpene lactones in com. Ginkgo biloba by HPLC)

IT 117-39-5, Quercetin 480-19-3, Isorhamnetin 520-18-3, Kaempferol

15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7

, Ginkgolide B 33570-04-6, Bilobalide 107438-79-9, Ginkgolide J

RL: ANT (Analyte); ANST (Analytical study)

(determination of flavonoids and terpene lactones in com. Ginkgo biloba by HPLC)

OS.CITING REF COUNT: 15 THERE ARE 15 CAPLUS RECORDS THAT CITE THIS RECORD (15 CITINGS)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 39 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2002:713329 HCAPLUS Full-text

DOCUMENT NUMBER: 137:389076

TITLE: Efficient Extraction of Ginkgolides and Bilobalide from Ginkgo biloba Leaves

AUTHOR(S): Lichtblau, Dirk; Berger, John M.; Nakanishi, Koji

CORPORATE SOURCE: Department of Chemistry, Columbia University, New York, NY, 10027, USA

SOURCE: Journal of Natural Products (2002), 65(10), 1501-1504

CODEN: JNPRDF; ISSN: 0163-3864

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB An efficient and rapid protocol has been developed for extracting ginkgolides and bilobalide (terpene trilactones) from Ginkgo biloba leaves. The procedure takes advantage of the extraordinary stability of the terpene trilactone structure to a variety of chemical treatments, especially oxidation, despite the presence of multiple oxygen functions. The protocol involves boiling the aqueous extract of leaves with dilute hydrogen peroxide, extraction with Et acetate, washing with basic solns., and charcoal filtration to yield an off-white powder, terpene trilactone content 60-70%. It is likely that the hydrogen peroxide treatment degrades the undesired leaf constituents that lead to intense emulsification during extns. Further reversed-phase chromatog. of the exts. with polymeric resins removes the undesirable ginkgolic acids to amts. less than 10 ppm. The exts. are suited for pure terpene trilactone preparation, enrichment of terpene trilactone content in nutraceuticals, and preps. of low-flavonoid/high-terpene trilactone controls in medicinal studies. The four ginkgolides (ginkgolides A, B, C, J) and bilobalide isolated from the extract were identical in all respects with authentic specimens.

CC 63-4 (Pharmaceuticals)
 Section cross-reference(s): 11

IT Extraction
 Ginkgo biloba
 Oxidation
 (efficient extraction of ginkgolides and bilobalide from Ginkgo biloba leaves)

IT Triterpenes
 RL: NPO (Natural product occurrence); PEP (Physical, engineering or chemical process); PYP (Physical process); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
 (lactones; efficient extraction of ginkgolides and bilobalide from Ginkgo biloba leaves)

OS.CITING REF COUNT: 20 THERE ARE 20 CAPLUS RECORDS THAT CITE THIS RECORD (20 CITINGS)

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 40 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2001:658748 HCAPLUS Full-text

DOCUMENT NUMBER: 136:74753

TITLE: Analysis of terpenelactones in Ginkgo biloba by high performance liquid chromatography and evaporative light scattering detection

AUTHOR(S): Ganzera, Markus; Zhao, Jianping; Khan, Ikhlas A.

CORPORATE SOURCE: National Center for Natural Products Research, Research Institute of Pharmaceutical Sciences, The University of Mississippi, University, MS, 38677, USA

SOURCE: Chemical & Pharmaceutical Bulletin (2001), 49(9), 1170-1173

CODEN: CPBTAL; ISSN: 0009-2363

PUBLISHER: Pharmaceutical Society of Japan

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A reversed phase HPLC method permitting the determination of 5 terpenelactones in Ginkgo biloba, without the need of any sample preparation is presented in this paper. The compds. were successfully separated within 25 min by using a C-12 column, an evaporative light scattering (ELS) detector and a mobile phase comprising of ammonium acetate buffer, methanol and isobutanol. All terpenelactones were detectable at concns. as low as 20.3 µg/mL. The anal. of G. biloba market products showed remarkable variations in the lactone content, and more than 2 fold differences in the suggested daily doses of the total lactones, from 8.84 mg to 18.28 mg, resp.

CC 64-2 (Pharmaceutical Analysis)

ST terpene lactone detn HPLC Ginkgo biloba; liq chromatog detn terpenelactone

IT Ginkgo biloba
 HPLC
 (anal. of terpenelactones in Ginkgo biloba by high performance liquid chromatog. and evaporative light scattering detection)

IT Terpenes, analysis
 RL: ANT (Analyte); ANST (Analytical study)
 (lactones; anal. of terpenelactones in Ginkgo biloba by high performance liquid chromatog. and evaporative light scattering detection)

IT 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7, Ginkgolide B 33570-04-6, Bilobalide 107438-79-9, Ginkgolide J
 RL: ANT (Analyte); ANST (Analytical study)
 (anal. of terpenelactones in Ginkgo biloba by high performance liquid chromatog. and evaporative light scattering detection)

OS.CITING REF COUNT: 24 THERE ARE 24 CAPLUS RECORDS THAT CITE THIS
RECORD (25 CITINGS)
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 41 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2001:571842 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 135:376882

TITLE: Assay of terpene lactones in Ginkgo biloba leaves by
RP-HPLC- ELSD

AUTHOR(S): Yan, Yuzhen; Xie, Peishan

CORPORATE SOURCE: Guangzhou Institute for Drug Control, Canton, 510160,
Peop. Rep. China

SOURCE: Yaowu Fenxi Zazhi (2001), 21(3), 173-176

CODEN: YFZADL; ISSN: 0254-1793

PUBLISHER: Yaowu Fenxi Zazhi Bianji Weiyuanhui

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Ginkgolide A, B, C and bilobalide in Ginkgo biloba leaves were determined simultaneously by RP-HPLC-ELSD. Methanolic exts. (10%) of the leaves were cleaned up by solid phase extraction via polyamide cartridge and silica gel cartridge successively and the sample solns. were prepared RP-HPLC anal. was carried out on a C18 column with MeOH-H2O as mobile phase, eluted in gradient mode, detected by evaporated light scattering detector. The key step for getting precise data was pre-treatment of the leaves extract through normal phase SPE cartridge and the poor linear response of ELSD could be compensated by multilevel calibration and logarithm calcn. The G. biloba leaves obtained from different area, different growth years and different collection seasons were determined and the contents of ginkgolide A, B, C and bilobalide in G. biloba leaves were different. It was significant for the quality control of the herbal medicine.

CC 64-2 (Pharmaceutical Analysis)

ST terpene lactone detn Ginkgo HPLC; HPLC light scattering terpene detn; liq chromatog terpene lactone detn

IT Ginkgo biloba

Plant analysis

Reversed phase HPLC

(determination of terpene lactones in Ginkgo biloba leaves by RP-HPLC-ELSD)

IT Terpenes, analysis

RL: ANT (Analyte); ANST (Analytical study)

(lactones; determination of terpene lactones in Ginkgo

biloba leaves by RP-HPLC-ELSD)

IT Liquid chromatographic detectors

(light-scattering; determination of terpene lactones in Ginkgo biloba

leaves by

RP-HPLC-ELSD)

IT 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7

, Ginkgolide B 33570-04-6, Bilobalide

RL: ANT (Analyte); ANST (Analytical study)

(determination of terpene lactones in Ginkgo biloba leaves by

RP-HPLC-ELSD)

L35 ANSWER 42 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2001:473178 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 135:266581

TITLE: Liquid chromatography/atmospheric pressure chemical
ionization mass spectrometry of terpene lactones in
plasma of volunteers dosed with Ginkgo biloba L.
extracts

AUTHOR(S): Mauri, Pierluigi; Simonetti, Paolo; Gardana, Claudio;

Minoggio, Markus; Morazzoni, Paolo; Bombardelli, Ezio; Pietta, Piergiorgio
CORPORATE SOURCE: Istituto Tecnologie Biomediche Avanzate - CNR, Milan, 20090, Italy
SOURCE: Rapid Communications in Mass Spectrometry (2001), 15(12), 929-934
CODEN: RCMSEF; ISSN: 0951-4198
PUBLISHER: John Wiley & Sons Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Liquid chromatog./atmospheric pressure chemical ionization mass spectrometry (LC/APCI-ITMS) was applied to evaluate the levels of ginkgolides A and B and bilobalide in plasma of volunteers after administration of Ginkgo biloba exts. in free (Ginkgoselect) or phospholipid complex (Ginkgoselect Phytosome) forms, providing 9.6 mg of total terpene lactones. The maximum plasma concns., Cmax, of total ginkgolides A, B and bilobalide were 85.0 and 181.8 µg/mL for Ginkgoselect and Ginkgoselect Phytosome, resp. The Cmax values were reached at 120 min for the free form and at 180-240 min for the phospholipid complex form. In both cases, the mean elimination half-life of each terpene lactone was in the range 120-180 min. Due to its sensitivity (.apprx.1 ng/mL) and specificity, LC/APCI-ITMS proved to be a very powerful tool for pharmacokinetic studies of these phytochems.
CC 1-1 (Pharmacology)
IT Chemical ionization mass spectrometry (atmospheric-pressure; liquid chromatog./atmospheric pressure chemical ionization mass spectrometry of terpene lactones in plasma of volunteers dosed with Ginkgo biloba L. exts.)
IT Ginkgo biloba RPLC (liquid chromatog./atmospheric pressure chemical ionization mass spectrometry of terpene lactones in plasma of volunteers dosed with Ginkgo biloba L. exts.)
IT Blood analysis (plasma; liquid chromatog./atmospheric pressure chemical ionization mass spectrometry of terpene lactones in plasma of volunteers dosed with Ginkgo biloba L. exts.)
IT Lactones
RL: ANT (Analyte); ANST (Analytical study) (terpene; liquid chromatog./atmospheric pressure chemical ionization mass spectrometry of terpene lactones in plasma of volunteers dosed with Ginkgo biloba L. exts.)
IT 15291-75-5, Ginkgolide A 15291-77-7, Ginkgolide B 33570-04-6, Bilobalide
RL: ANT (Analyte); ANST (Analytical study) (liquid chromatog./atmospheric pressure chemical ionization mass spectrometry of terpene lactones in plasma of volunteers dosed with Ginkgo biloba L. exts.)
OS.CITING REF COUNT: 33 THERE ARE 33 CAPLUS RECORDS THAT CITE THIS RECORD (33 CITINGS)
REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT
L35 ANSWER 43 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2001:405494 HCAPLUS Full-text
DOCUMENT NUMBER: 135:200547
TITLE: Selective dissolution and one step separation of terpene trilactones in Ginkgo leaf extracts for GC-FID determination
AUTHOR(S): Lang, Q.; Yak, Hwa Kwang; Wai, C. M.
CORPORATE SOURCE: Department of Chemistry, University of Idaho, Moscow,

SOURCE: ID, 83844-2343, USA
 Talanta (2001), 54(4), 673-680
 CODEN: TLNTA2; ISSN: 0039-9140

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Under ultrasonication, the Ginkgo terpene trilactones, ginkgolides and bilobalide, in Ginkgo exts. can be selectively dissolved in 10% aqueous NaH₂PO₄ solution at a temperature of 50-60° and separated from the solution by extraction with a mixture of EtOAc/THF in a capped vial. After derivatization, these terpene trilactones were quantified by using GC-FID. This method had a detection limit of 10 ng, and the RSD was 6%. Twelve com. GBE products in powder, liquid, tablet and capsule forms were analyzed. The total time required for analyzing these samples from sample preparation to final data processing was <6 h, and the total organic solvent consumption was <40 mL. This procedure is a simple, fast, safe, and effective method for all types of Ginkgo biloba exts. including the "complex" or "advanced" formulations.

CC 64-2 (Pharmaceutical Analysis)
 Section cross-reference(s): 63

ST terpene trilactone detn Ginkgo gas chromatog

IT Gas chromatography
 Ginkgo biloba
 (dissoln. and separation of terpene trilactones in Ginkgo exts. for GC-FID determination)

IT Terpenes, analysis
 RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)
 (lactones; dissoln. and separation of terpene trilactones
 in Ginkgo leaf exts. for GC-FID determination)

IT 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7
 , Ginkgolide B 107438-79-9, Ginkgolide J
 RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)
 (dissoln. and separation of terpene trilactones in Ginkgo exts.
 for GC-FID determination)

OS.CITING REF COUNT: 8 THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD
 (8 CITINGS)

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 44 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2001:58319 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 134:262980

TITLE: The application of a novel adsorbent in rapid sample clean-up of ginkgolides and bilobalide in extracts of Ginkgo biloba leaves

AUTHOR(S): Xu, Mingcheng; Xu, Mancai; Shi, Zuoqing; Liu, Juxiang; Shi, Rongfu; He, Binglin

CORPORATE SOURCE: The State Key Laboratory of Functional Polymeric Materials for Adsorption and Separation, Institute of Polymer Chemistry, Nankai University, Tianjin, 300071, Peop. Rep. China

SOURCE: Chinese Journal of Reactive Polymers (2000), 9(1), 60-66
 CODEN: CJRPEH; ISSN: 1004-7646

PUBLISHER: Nankai University, Institute of Polymer Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A rapid method has been developed for rapid sample clean-up in the determination of the pharmacol. active terpenoid including ginkgolide A, B, C and bilobalide in ginkgo biloba leaves exts. (GBE). The exts. are dissolved

in 7% of ethanol aqueous solution and then purified by a highly selective polymeric adsorbent solid-phase chromatog. column. After being concentrated, the separated terpenoids with no phenolic disturbance are determined by high-performance liquid chromatog. on a Nova-Pak C18 column with methanol-water (30:70) as effluent and refractive index detection. The recovery of the method is about 95% and the new method saves more time than the conventional two-column purification method.

CC 9-3 (Biochemical Methods)
Section cross-reference(s): 11

IT Chromatography
(adsorbents; application of a novel adsorbent in rapid sample clean-up in exts. of Ginkgo biloba leaves)

IT Ginkgo biloba
HPLC stationary phases
Hydrogen bond
(application of a novel adsorbent in rapid sample clean-up in exts. of Ginkgo biloba leaves)

IT Adsorbents
(chromatog.; application of a novel adsorbent in rapid sample clean-up in exts. of Ginkgo biloba leaves)

IT Terpenes, biological studies
RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(lactones; application of a novel adsorbent in rapid sample clean-up in exts. of Ginkgo biloba leaves)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 45 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN
ACCESSION NUMBER: 2000:775495 HCAPLUS [Full-text](#)
DOCUMENT NUMBER: 134:9446
TITLE: Separation and isolation of terpene lactones from Ginkgo biloba L. by direct high performance liquid chromatography
AUTHOR(S): Tang, Yuping; Lou, Fengchang
CORPORATE SOURCE: China Pharmaceutical University, Nanjing, 210038, Peop. Rep. China
SOURCE: Journal of Liquid Chromatography & Related Technologies (2000), 23(18), 2897-2900
CODEN: JLCTFC; ISSN: 1082-6076
PUBLISHER: Marcel Dekker, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Isolation of terpene lactones, i.e., Bilobalide, Ginkgolides A, B, C and J in pure form from Ginkgo biloba leaves by a preparative high performance liquid chromatog. procedure was described.

CC 64-3 (Pharmaceutical Analysis)

IT Ginkgo biloba
HPLC
(separation and isolation of terpene lactones from Ginkgo biloba L. by direct high performance liquid chromatog.)

IT Terpenes, analysis
RL: ANT (Analyte); ANST (Analytical study)
(separation and isolation of terpene lactones from Ginkgo biloba L. by direct high performance liquid chromatog.)

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 46 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2000:766968 HCAPLUS Full-text

DOCUMENT NUMBER: 134:53282

TITLE: Rapid analysis of terpene lactones in extract of Ginkgo biloba L. by high performance liquid chromatography

AUTHOR(S): Wang, Hai-feng; Ju, Xing-rong

CORPORATE SOURCE: Anal. and Test centre of Cereal, Oil and Foodstuffs, Nanjing Institute of Economics, Nanjing, 210003, Peop. Rep. China

SOURCE: Sepu (2000), 18(5), 394-397

CODEN: SEPUER; ISSN: 1000-8713

PUBLISHER: Kexue Chubanshe

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new rapid anal. method was developed for the quantification of terpene lactones (bilobalide (BB) and ginkgolide A,B,C,J) in extract of Ginkgo biloba L. (EGb) using a liquid-liquid solvent extraction procedure followed by high performance liquid chromatog. EGb was dissolved in 30% ethanol and extracted with ether. After evaporation, the residue was then determined by HPLC on a C18 column with methanol-water-orthophosphoric acid (25:75:0.1, V/V) as eluent and refractive index (RI) detection. Results showed that the excellent sample clean-up procedure is more simple and specific, and saves more time (less than 20 min) than any other methods that have been reported, and also leads to high recoveries (>99.0%) and low RSDs (<2.0%). The reproducible method is regarded to be very useful for evaluating the quality of extract of Ginkgo biloba L.

CC 9-3 (Biochemical Methods)

Section cross-reference(s): 11, 30

ST Ginkgo terpene lactone bilobalide ginkgolide HPLC; liq chromatog Ginkgo terpene lactone bilobalide ginkgolide

IT Terpenes, analysis

RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence)

(lactones; rapid anal. of terpene lactones in extract of Ginkgo biloba L. by high performance liquid chromatog.)

IT Extraction

Ginkgo biloba
HPLC

Plant analysis

(rapid anal. of terpene lactones in extract of Ginkgo biloba L. by high performance liquid chromatog.)

IT 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7

, Ginkgolide B 33570-04-6, Bilobalide 107438-79-9, Ginkgolide J

RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence)

(rapid anal. of terpene lactones in extract of Ginkgo biloba L. by high performance liquid chromatog.)

OS.CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 47 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2000:316563 HCAPLUS Full-text

DOCUMENT NUMBER: 133:125364

TITLE: High-performance liquid chromatographic determination methods of terpene lactones from Ginkgo

biloba
 AUTHOR(S): Lu, Ding-qiang; Chen, Jun
 CORPORATE SOURCE: School of Biological and Environmental Engineering,
 Jiangsu University of Science and Technology,
 Zhenjiang, 212013, Peop. Rep. China
 SOURCE: Jiangsu Ligong Daxue Xuebao (2000), 21(2), 22-26
 CODEN: JLDXFT; ISSN: 1007-1741
 PUBLISHER: Jiangsu Ligong Daxue Xuebao Bianjishi
 DOCUMENT TYPE: Journal; General Review
 LANGUAGE: Chinese
 AB A review with 21 refs. Ginkgolides and bilobalide are the main components with benefic clin. efficacy in Ginkgo biloba leaf exts. and Ginkgo prepsns. So the qual. and quant. analyses in determining ginkgolides and bilobalide are important. At present the reverse-phase high-performance liquid chromatog. (HPLC) methods are more suitable and popular. According to different detectors, the HPLC methods are divided into three divisions: HPLC-UV, HPLC-refractive index (RI), HPLC-evaporated light scattering detection (ELSD) and HPLC-Mass spectrometry (MS). The review and comparison of the published HPLC methods, and the clean-up procedures of sample are given.
 CC 64-0 (Pharmaceutical Analysis)
 IT Ginkgo biloba
 HPLC
 (high-performance liquid chromatog. determination methods of terpene lactones from Ginkgo biloba)
 IT Terpenes, analysis
 RL: ANT (Analyte); ANST (Analytical study)
 (lactones; high-performance liquid chromatog. determination methods of terpene lactones from Ginkgo biloba)
 IT 33570-04-6, Bilobalide
 RL: ANT (Analyte); ANST (Analytical study)
 (high-performance liquid chromatog. determination methods of terpene lactones from Ginkgo biloba)
 OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD
 (1 CITINGS)
 L35 ANSWER 48 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 2000:222468 HCAPLUS Full-text
 DOCUMENT NUMBER: 133:55457
 TITLE: Determination of five kinds of ginkgolides in Ginkgo biloba leaves extract by reversed-phase high performance liquid chromatography
 AUTHOR(S): Zhang, Jian; Pan, Jian; Xie, Huiming; Yang, Zhiyi; Hu, Xueqiao; Yang, Ke
 CORPORATE SOURCE: Institute of Bi-mechanical & Electrical Engineering,
 Hefei University of Technology, Hefei, 230069, Peop. Rep. China
 SOURCE: Fenxi Huaxue (2000), 28(1), 53-56
 CODEN: FHHHDT; ISSN: 0253-3820
 PUBLISHER: Zhongguo Huaxuehui "Fenxi Huaxue" Bianji Weiyuanhui
 DOCUMENT TYPE: Journal
 LANGUAGE: Chinese
 AB In this paper, five kinds of ginkgolides (A, B, C, J, BB) in Ginkgo biloba leaves extract was determined by reversed-phase high performance liquid chromatog. at the first time. The Waters Symmetry-C18 column (3.9 mm x 150 mm, 5 µm) and column temperature was 30°, 24% (V/V) methanol as mobile phase and detector was refractometer (model: waters 410, sensitivity: 1024). The calibration curve was linear in the range of 0.02.apprx.0.40 g/L, r = 0.9814.apprx.0.9934; recovery: 93.2% .apprx. 97.4% and RSD: 1.27% .apprx. 2.68%,different ginkgolides determination limit from 2.07 to 3.98 mg/L. This

method is sensitive, reproducible and easy to operate. The condition of column can be enlarging for preparing-scale high performance liquid chromatog.

CC 9-3 (Biochemical Methods)

ST Section cross-reference(s): 11, 64

IT detn ginkgolide Ginkgo biloba leaf; reversed phase high performance liq chromatog

IT Ginkgo biloba

Leaf

Reversed phase HPLC

(determination of five kinds of ginkgolides in Ginkgo biloba leaves extract

by reversed-phase high performance liquid chromatog.)

IT Terpenes, analysis

RL: ANT (Analyte); ANST (Analytical study)

(lactones; determination of five kinds of ginkgolides in Ginkgo biloba leaves extract by reversed-phase high performance liquid chromatog.)

IT 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7, Ginkgolide B 33570-04-6 107438-79-9, Ginkgolide J

RL: ANT (Analyte); ANST (Analytical study)

(determination of five kinds of ginkgolides in Ginkgo biloba leaves extract

by reversed-phase high performance liquid chromatog.)

OS.CITING REF COUNT: 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)

L35 ANSWER 49 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2000:12273 HCAPLUS Full-text

DOCUMENT NUMBER: 132:227524

TITLE: Liquid chromatography/electrospray mass spectrometry of bioactive terpenoids in Ginkgo biloba L.

AUTHOR(S): Mauri, Pierluigi; Migliazza, Barbara; Pietta, Piergiorgio

CORPORATE SOURCE: ITBA/CNR, Milan, 20090, Italy

SOURCE: Journal of Mass Spectrometry (1999), 34(12), 1361-1367

CODEN: JMSPFJ; ISSN: 1076-5174

PUBLISHER: John Wiley & Sons Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Standardized exts. of G. biloba leaves are mainly used in the treatment of peripheral and cerebral circulation disorders, and also as a remedy against asthma, coughs, bladder inflammation, blenorragia and alc. abuse. The leaf exts. contain biflavones, flavonol glycosides and terpene lactones. This paper reports a method based on liquid chromatog. coupled with electrospray mass spectrometry for the anal. of terpenoids in G. biloba exts. This method allows the rapid isocratic separation of underivatized ginkgolides (A, B, C and J) and bilobalide at very low levels (10 pg on the column) and their quant. detection by external standardization with relative standard deviations of 3 and 5% for intra- and inter-day analyses, resp.

CC 64-2 (Pharmaceutical Analysis)

ST liq chromatog mass spectrometry terpenoid Ginkgo; HPLC mass spectrometry terpenoid detection Ginkgo; ginkgolide detection Ginkgo chromatog mass spectrometry; electrospray mass spectrometry Ginkgo terpenoid

IT Glycosides

RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence)

(flavonoid; liquid chromatog./electrospray mass spectrometry of bioactive terpenoids in Ginkgo biloba exts..)

IT Terpenes, analysis

RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence)
 (lactones; liquid chromatog./electrospray mass spectrometry of bioactive terpenoids in Ginkgo biloba exts..)

IT Mass spectrometry
 Mass spectrometry
 (liquid chromatog. combined with; liquid chromatog
 ./electrospray mass spectrometry of bioactive terpenoids in Ginkgo biloba exts..)

IT Electrospray ionization mass spectrometry
 Ginkgo biloba
 RPIC
 (liquid chromatog./electrospray mass spectrometry of bioactive terpenoids in Ginkgo biloba exts..)

IT Flavonoids
 RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence)
 (liquid chromatog./electrospray mass spectrometry of bioactive terpenoids in Ginkgo biloba exts..)

IT Liquid chromatography
 Liquid chromatography
 (mass spectrometry combined with; liquid chromatog
 ./electrospray mass spectrometry of bioactive terpenoids in Ginkgo biloba exts..)

IT 153-18-4, Quercetin 3-O-rutinoside 604-80-8, Isorhamnetin 3-O-rutinoside 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7, Ginkgolide B 17650-84-9, Kaempferol 3-O-rutinoside 32453-37-5 32690-74-7 33570-04-6, Bilobalide 107190-70-5 107190-71-6 107438-79-9, Ginkgolide J 175089-93-7 261353-22-4
 RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence)
 (liquid chromatog./electrospray mass spectrometry of bioactive terpenoids in Ginkgo biloba exts..)

OS.CITING REF COUNT: 29 THERE ARE 29 CAPLUS RECORDS THAT CITE THIS RECORD (29 CITINGS)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 50 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 1999:334416 HCAPLUS Full-text
 DOCUMENT NUMBER: 131:134473
 TITLE: An Extraction Method for Determination of Ginkgolides and Bilobalide in Ginkgo Leaf Extracts
 AUTHOR(S): Lang, Qingyong; Wai, C. M.
 CORPORATE SOURCE: Department of Chemistry, University of Idaho, Moscow, ID, 83844, USA
 SOURCE: Analytical Chemistry (1999), 71(14), 2929-2933
 CODEN: ANCHAM; ISSN: 0003-2700
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB On the basis of reversible ionization and intramol. esterification, ginkgolides can be effectively removed from Ginkgo extract products or from Ginkgo leaves with boiling water containing 0.1% Na2HPO4 at pH 8 followed by extraction of the aqueous phase with methylene chloride at pH 5. Bilobalide was quant. removed from these samples by boiling water followed by the same liquid/liquid extraction After derivatization with

bis(trimethylsilyl)acetamide, these lactone terpenoids were readily quantified using GC-FID with baseline separation Using the proposed procedure, 6 different com. Ginkgo biloba products were analyzed, and significant differences in their ginkgolide contents were observed

CC 63-4 (Pharmaceuticals)
 Section cross-reference(s): 9, 64

ST ginkgolide extn Ginkgo gas chromatog

IT Extraction
 Gas chromatography
 Ginkgo biloba
 Plant analysis
 (extraction method for determination of ginkgolides and bilobalide in Ginkgo leaf exts.)

IT Diterpenes
 Diterpenes
 RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
 (lactones; extraction method for determination of ginkgolides and bilobalide in Ginkgo leaf exts.)

OS.CITING REF COUNT: 24 THERE ARE 24 CAPLUS RECORDS THAT CITE THIS RECORD (24 CITINGS)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 51 OF 51 HCAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1998:794528 HCAPLUS Full-text

DOCUMENT NUMBER: 130:57289

TITLE: Determination of terpene lactones in extract of Ginkgo biloba L. by TLC scanning

AUTHOR(S): Tang, Yuping; Lou, Fengchang; Zheng, Weiping

CORPORATE SOURCE: China Pharmaceutical University, Nanjing, 210008, Peop. Rep. China

SOURCE: Yaowu Fenxi Zazhi (1998), 18(5), 305-307
 CODEN: YFZADL; ISSN: 0254-1793

PUBLISHER: Yaowu Fenxi Zazhi Bianji Weiyuanhui

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The content determination of ginkgolides A, B, C and bilobalide in extract of G. biloba L. leaves by a TLC scanning method was studied. A methanol solution of the ethanol extract of Ginkgo leaves was dispersed on a silica gel GF254-0.5% sodium CM-cellulose plate using acetoacetic acid-toluene-acetone as the dispersing agent to a distance of 16 cm. The fluorescence was observed under 365 nm UV light. The method is simple, rapid, accurate, reproducible and of wide linear range.

CC 64-2 (Pharmaceutical Analysis)
 Section cross-reference(s): 11

IT Ginkgo biloba
 Plant analysis
 TLC (thin layer chromatography)
 (determination of terpene lactones in Ginkgo biloba exts. by TLC scanning method)

IT Terpenes, analysis
 RL: ANT (Analyte); ANST (Analytical study)
 (lactones; determination of terpene lactones in Ginkgo biloba exts. by TLC scanning method)

IT 15291-75-5, Ginkgolide A 15291-76-6, Ginkgolide C 15291-77-7
 , Ginkgolide B 33570-04-6, Bilobalide

Nizal Chandrakumar 10/579,162

RL: ANT (Analyte); ANST (Analytical study)
(determination of terpene lactones in Ginkgo biloba exts. by TLC
scanning method)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD
(1 CITINGS)

=> d his ful

(FILE 'HOME' ENTERED AT 16:46:19 ON 27 OCT 2009)

FILE 'CAPLUS' ENTERED AT 16:46:25 ON 27 OCT 2009

E US2007-579162/APP5

L1 1 SEA SPE=ON ABB=ON PLU=ON US2007-579162/AP
SEL RN

FILE 'REGISTRY' ENTERED AT 16:46:37 ON 27 OCT 2009

L2 14 SEA SPE=ON ABB=ON PLU=ON (100-39-0/BI OR 106-95-6/BI OR
107438-79-9/BI OR 15291-75-5/BI OR 15291-76-6/BI OR 15291-77-7/
BI OR 170288-58-1/BI OR 17690-16-3/BI OR 2746-25-0/BI OR
33570-04-6/BI OR 4392-24-9/BI OR 502421-88-7/BI OR 534-17-8/BI
OR 584-08-7/BI)

L3 1 SEA SPE=ON ABB=ON PLU=ON 852046-13-0/BI

L4 15 SEA SPE=ON ABB=ON PLU=ON L2 OR L3

FILE 'CAPLUS' ENTERED AT 16:46:49 ON 27 OCT 2009

L5 1 SEA SPE=ON ABB=ON PLU=ON L4 AND L1
D IALL HITSTR

FILE 'STNGUIDE' ENTERED AT 16:47:42 ON 27 OCT 2009

FILE 'REGISTRY' ENTERED AT 16:47:47 ON 27 OCT 2009

E TERPENE TRILACTONE/CN

FILE 'STNGUIDE' ENTERED AT 16:48:22 ON 27 OCT 2009

FILE 'CAPLUS' ENTERED AT 16:53:43 ON 27 OCT 2009

E GINKGO BILOBA/CT

E GINKGO BILOBA/CT

E GINKGO BILOBA/CT

E E3+ALL

FILE 'HCAPLUS' ENTERED AT 16:54:54 ON 27 OCT 2009

L6 4569 SEA SPE=ON ABB=ON PLU=ON GINKGO BILOBA+PFT,NT/CT

E TERPENES+ALL/CT

L7 2201 SEA SPE=ON ABB=ON PLU=ON TERPENES+PFT,NT/CT(L)?LACTON?

L8 184 SEA SPE=ON ABB=ON PLU=ON L7 AND L6

E SEPARATION+ALL/CT

L9 1075549 SEA SPE=ON ABB=ON PLU=ON SEPARATION+PFT,NT/CT

L10 83 SEA SPE=ON ABB=ON PLU=ON L9 AND L8

L11 1 SEA SPE=ON ABB=ON PLU=ON L10 AND L1

D SCA

L12 49 SEA SPE=ON ABB=ON PLU=ON L10 AND ?CHROMATOG?

FILE 'STNGUIDE' ENTERED AT 16:59:29 ON 27 OCT 2009

FILE 'HCAPLUS' ENTERED AT 17:11:22 ON 27 OCT 2009

FILE 'REGISTRY' ENTERED AT 17:11:24 ON 27 OCT 2009

E GINKGOLIDE A/CN

Nizal Chandrakumar 10/579,162

L13 1 SEA SPE=ON ABB=ON PLU=ON "GINKGOLIDE A"/CN
E GINKGOLIDE B/CN
L14 1 SEA SPE=ON ABB=ON PLU=ON "GINKGOLIDE B"/CN
E GINKGOLIDE C/CN
L15 1 SEA SPE=ON ABB=ON PLU=ON "GINKGOLIDE C"/CN
E GINKGOLIDE J/CN
L16 1 SEA SPE=ON ABB=ON PLU=ON "GINKGOLIDE J"/CN
L17 4 SEA SPE=ON ABB=ON PLU=ON (L13 OR L14 OR L15 OR L16)
SEL RN
L18 8 SEA SPE=ON ABB=ON PLU=ON (107438-79-9/CRN OR 15291-75-5/CRN
OR 15291-76-6/CRN OR 15291-77-7/CRN)
L19 12 SEA SPE=ON ABB=ON PLU=ON L17 OR L18

FILE 'HCAPLUS' ENTERED AT 17:13:33 ON 27 OCT 2009

L20 97 SEA SPE=ON ABB=ON PLU=ON L19(L)PUR/RL
L21 1 SEA SPE=ON ABB=ON PLU=ON L20 AND L1

FILE 'REGISTRY' ENTERED AT 17:13:50 ON 27 OCT 2009

E CK203/MF
E K2C03/MF
L22 1 SEA SPE=ON ABB=ON PLU=ON L4 AND K/ELS
D SCA
SEL RN
L23 120 SEA SPE=ON ABB=ON PLU=ON 584-08-7/CRN OR L22
E DIMETHYL FORMAMIDE/CN
E DIMETHYLFORMAMIDE/CN
L24 1 SEA SPE=ON ABB=ON PLU=ON DIMETHYLFORMAMIDE/CN
D SCA
L25 0 SEA SPE=ON ABB=ON PLU=ON L24 AND L4
SEL RN L24
L26 4742 SEA SPE=ON ABB=ON PLU=ON L24 OR 68-12-2/CRN
L27 0 SEA SPE=ON ABB=ON PLU=ON L26 AND L4
E BENZYL BROMIDE/CN
L28 1 SEA SPE=ON ABB=ON PLU=ON "BENZYL BROMIDE"/CN
D SCA
SEL RN
L29 118 SEA SPE=ON ABB=ON PLU=ON L28 OR 100-39-0/CRN

FILE 'HCAPLUS' ENTERED AT 17:19:59 ON 27 OCT 2009

L30 117 SEA SPE=ON ABB=ON PLU=ON L20 OR L19(L) (?ISOLAT? OR ?PURIF?)
L31 4 SEA SPE=ON ABB=ON PLU=ON L30 AND (L23 OR L26 OR L29)
L32 1 SEA SPE=ON ABB=ON PLU=ON L1 AND L31
L33 40 SEA SPE=ON ABB=ON PLU=ON L30 AND ?CHROMATOG?
L34 4 SEA SPE=ON ABB=ON PLU=ON L31 AND L33
L35 51 SEA SPE=ON ABB=ON PLU=ON L34 OR L12

FILE 'HCAPLUS' ENTERED AT 17:21:49 ON 27 OCT 2009

D QUE L35
D L35 IBIB ABS HITIND TOT